An Introductory Lecture

UPON

THE TYPES OF STUDENTS.

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BY SIR J. RUSSELL REYNOLDS, BART., M.D., F.R.C.P. LOND., F.R.S.,

NOW PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; EMERITUS PROFESSOR OF MEDICINE IN UNIVERSITY COLLEGE; AND CONSULTING PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

THEN SPECIAL PROFESSOR OF CLINICAL MEDICINE IN UNIVERSITY COLLEGE; AND PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

GENTLEMEN,—The office of "Special Professor of Clinical Medicine," which it is my honour to hold in University College, has furnished me with opportunities for the study, not only of patients, but of students; and I purpose to-day to present you with some of the results of those clinical observations which I have made upon the latter.

The term "clinical lecture" is often applied to a discourse delivered elsewhere than at the bedside of a patient. In like manner a familiar phrase is often used to denote a species of exhortation, or it may be rebuke, administered at other times than in the hush of night, and under circumstances of less privacy than the "curtain" might secure. If, then, I denominate the remarks I am about to make "a clinical lecture upon students," common professional usage of words will be on my side, if strict etymology is not; for those remarks, although delivered in the theatre, are founded upon observations conducted, for the most part, in the wards. And if anything I may say should seem to have the tone of exhortation or rebuke I wish you to think that such message comes to you from the other side of the curtain, where lies the patient, not any individual patient, but the great suffering world, which is at once our study and our care.

It is towards clinical work that all medical study tends; it is at the bedside of the patient that our "science" culminates, and becomes an "art." The "case" with which we come in contact is, as it were, the "medium" through which "correlated forces" become exchanged; or, to alter the figure, the "reflective centre," in which all the "knowledge" we have laboriously gathered from without becomes converted into "power" for the patient's good. It is well, therefore, to keep this end in view, and to regard all our studies in this their high relation. The beside of the patient is the point from which to value correctly all scientific medicine; and it is from this standpoint that I would now address you. And in delivering a clinical lecture upon students I shall not depart from the plan I usually adopt, but shall commence by giving you a picture of the cases that I wish to bring before you—they are five in number. After having described them, I shall advance to a consideration of their pathology; but, first, let me sketch these cases as you may have seen them, and may again see them, in our wards.

CASE 1.—Cyrus Vane Velox is between nineteen and twenty-four years of age. His last year or two have been nominally spent at the College. It was observed while he was there that his attendance upon lectures often assumed a remittent form; that occasionally prolonged intermissions occurred; that the intervals between his paroxysms of attendance gradually increased in length, and that some curious repulsive influence seemed to become developed, not only between himself and the lecture-room, but between himself and the professor; for it was noticed that upon each period of his return he withdrew himself further and further from the professor's position in the lecture-room or the theatre. At first he sat in the lowermost rows of seats, and occasionally took notes of the lectures that were delivered; but afterwards, having eaten his pens, he was reduced to the necessity of making such notes and illustrations as he could with his penknife on the surface of the benches. A disadvantage attached to this process was that he could not carry these notes away for private use; but he succeeded in taking his note-book away, and it was subsequently ascertained to have passed gradually from the desk to his pocket, from his pocket to his locker, and he appeared quite devoid of it after a little time, having substituted for it a walking-stick, the proximal extremity of which he usually kept in his mouth as he sat at the top row of the theatre, or removed it from that locality only to make slightly audible rhythmic movements upon the floor. Another fact noticed about him was that the commencement of his attendance upon individual lectures became gradually delayed; so that on one week it was five minutes past the hour before he arrived, the next week ten minutes, and so on until he disappeared altogether. A curious infirmity affected him in the dissecting-room. He was usually seen seated between his "upper" and his "Ellis," as unhappy as if he were about to be dissected himself; and looking abjectly into mid air, as if he expected that anatomical knowledge might by some strange occult projection penetrate his own "head and neck," and perchance remain there. But instead of this happy result he soon verified in his own experience the old anatomical and physiological discovery that there is a passage by which truth that has entered in at one ear may very readily pass out at the other. And so, instead of "cleaning the muscles" he cleaned his scalpels, cut up his "part," or allowed someone to do it for him, and promised to himself to "get up his anatomy" at some time or another by the aid of one of those rotatory machines which must be nameless.

Having thus finished at the College, he came across to the hospital, and was admitted. A delay appeared to attend his admission, and in a chronic form, it affects him still. It takes him generally from ten to twenty minutes to get through the lobby of the hospital, and he has been known sometimes, so great is the obstruction, to get no further. A casual observer might think he was not trying to effect the passage, as he often seems to be standing with his face to the street, conversing with others afflicted like himself, and producing severe "portal congestion" of the institution; or sometimes talking even to the out-patients as they pass the door into their waiting-room; but his conversation has not, so far as I have observed, been directed to the discovery of their diseases, his principle of selection amongst these out-patients, who are rarely if ever of the male sex, appearing to be rather closely associated with the presence of good looks and the not very conspicuous presence of modesty. The stick with which he broke out a year and a half ago is still visible, there is often a want of correspondence between the vertical line of his body and the median line of his hat, and the detrusion of the latter towards one or the other side has of late shown a marked tendency to increase. This little symptom has been observed a great many times, and its exacerbation has been thoroughly established. There can be no doubt of the correctness of the observation, for our patient usually keeps on this appendage of his when others are in the habit of removing theirs. After, however, the considerable delay occasioned in the manner I have described, our case arrives in Ward III., and the "present state," as entered in my notebook, is as follows:—

C. V. V——, found sitting, with his hat on, upon the corner of he table in the middle of the ward; thus, during the early part of the visit, maintaining as great a distance as he conveniently can between himself and the patient first examined. Moving gradually towards the fireplace, he places his back opposite that calorifying arrangement, so that he can take a comprehensive view of the ward by seeing all the patients it contains at one glance. He yawns frequently, comes into the outermost circle of students around the bed, looks first over the shoulders and then under the axillas of those in front of him, fails to see anything of the case under examination, and so talks and jokes with his nearest neighbour, not loudly, but in a tone which does not materially assist those who are commencing the practice of auscultation. He walks to a distant bed, looks knowingly at the bed-card, sees the patient's name, age, and occupation; makes his diagnosis by reading that which is written on the card; judges of the treatment by smelling the bottle of physic; is thus able to say there is a case of rheumatic fever in Ward III.; and having ascertained that important fact, he seizes an opportunity, when the physician appears to be looking the other way, and rather quietly—out of consideration, let us now hope, for those who are listening to cardiac murmurs—he takes his leave. The periods of his return to the wards are singularly uncertain; but it has been observed that they bear some curious relation to lunar time, and that they are often synchronous with the recurrence of those days on which the names of students have to be entered in the book kept near the door. It was most mercifully arranged that this book should be kept so near the outer door, for the fatigue occasioned by effecting the passage

of the lobby was often so great that all our patient could accomplish, after he had encountered it, was sometimes to take fresh air in the operating theatre or entrance to the dead-house, or when not equal to these exertions to return into the street. Towards the end of each session there is a singular propensity for his reappearance in the wards; and it has occurred to some of the medical staff that this may be determined in some mysterious manner by the presence of an unsigned schedule in the pocket. I do not insist upon this explanation, but whatever may be the theory the fact is one which has been frequently observed, and which I have no doubt some of you will observe again.

There are some negative characters in Vane's case that are worthy of notice. He never obstructs the house surgeons' or physicians' assistants in their morning duties. It is confidently asserted by some who know him that he was never seen in any one of the wards before one o'clock. Again, he has never complicated the work of the physicians and surgeons in selecting either clerks or dressers by placing his name upon the list of candidates for those most valuable appointments. It is a rule of the hospital that no one shall appear within the area of the dead-house during a post-mortem examination except the physician or surgeon and his assistants engaged in conducting it. This rule, often broken by others, C. V—— most diligently observes; and, indeed, he is so scrupulous to avoid even the appearance of this evil that he absents himself altogether from the room. He may, however, be observed in the operating theatre when there is anything exciting to be seen; but even in this place he is faithful to the law of his being—viz., that of maintaining as great a distance as is possible between himself and the object he is supposed to study; and it is well known that he never makes himself acquainted with a case before it is submitted to operation, and that he never troubles himself to learn its subsequent history. Thus his view of the nature and value of operations is somewhat broad, and the breadth of his view is often expressed somewhat freely. I remember one of the family of young Vane, who was in hospital some years ago, giving very decided criticisms upon the operations of Mr. Liston, and enlightening the students of his own class as to the improved manner in which he should have treated the case had it been so fortunate as to have been placed under his care. You will often find this combination of great learning and great modesty, just as you do elsewhere that of great ignorance and great presumption: they are two affections having an interesting clinical association, developed often *pari passu*, and forming, as it were, the right- and left-handed accomplishments of a college course as it affects an individual like young Vane Velox.

Enough has been said to enable you to recognise the case. I shall advance to a consideration of its pathology by-and-bye, but will now sketch for you another type of malady by which some students have been known to be affected, and which was well represented by—

CASE 2.—David Superficialis Hurry. This gentleman entered college, dissecting-room, laboratory, and hospital at once, and he has been in all of them ever since. He was in his fourth year at the time my notes of his case were taken, and this was his "history." He had attended and taken notes of every lecture that it was possible for him to attend; sometimes, indeed, so busy was he that he gave finishing touches to his notes of that on physiology while the lecture on chemistry was going on. He had dissected the body several times in all its parts. He had gone through the courses of "practical chemistry" and "practical histology." He had been both clerk and dresser. He had taken notes voluminously. There was a very complete body of medical science in his reams of manuscript. So large was it, however, that it was like the Sphinx upon a close examination, and D. S. H—— wandered and climbed over it in vain to find the features, the facts, or principles that he wanted; but he had the satisfaction of believing, as he looked upon his shelves, that they (the facts or principles) were there, and he hoped that upon some future occasion he should be able to sort this objective knowledge, make a catalogue and index of the library he had created, and turn it to his real advantage. As yet, however, he had found no time for this worthy end. He was generally in a desperate hurry; the day was too short for him, and the night often saw him performing the well-known process of "consuming midnight oil" in the futile attempt, between his snatches of sleep, to bind into bundles the numerous broken sticks of science he had so assiduously gathered through the day. His great trial was that he could not manage to be in two places or hear two or more lectures at the same time. The attempt to accomplish this he had relinquished; but often, even recently, he was known to have tried to do some two or more things at once, and this he performed with the success commonly attendant on that process.

Now, in his fourth year, he comes before us in Ward III. at 2 P.M. He has seen all the patients in the hospital this morning, having "gone round" at a "double quick" with or without the house surgeons' or physicians' assistants. He is fresh from an operation, where, one of the dressers being absent, his fingers, ever ready, were found of use; he is bent upon a post-mortem examination to come off immediately; the clerk is away, and he is to take the notes. The skin department, the eye department, the dental surgeon, the obstetric physician, have all been attended at their proper times. There is not an inquest at which, somehow or other, his evidence is not required; not an accident which does not fall in his way. He is even present in the casualty room at midnight whenever a drunken cabman is brought in for the stomach-pump and cold effusions. He feels the crepitus of every broken bone; he hears something of every cardiac murmur; he percusses every morbid chest; he handles every morbid specimen. He seems almost as ubiquitous as he could wish to be; he is up both early and late; he gives himself no time for rest, no time for play. He is in a condition of educational pyrexia, and even when he sleeps exhibits a "low muttering delirium" of broken bones, triple phosphates, rheumatic fever, and typhoid spots.

The case of D. S. H—— is an example of extreme disturbance, and is interesting on account of the rarity with which the affection is met with when carried to so high a degree of intensity. It usually proves fatal long before it has reached this pitch. But the same malady, milder and somewhat modified in character, is very commonly observed. Cases radiate around types, which may be regarded as the centres of large groups of diseases; and it is convenient, for the purpose of contrast, to describe these types. I wish you, therefore, to retain Hurry in your memory, for I shall have presently to analyse his affection; but before doing so I must bring under your notice another case equally important and interesting, that of—

CASE 3.—Chemicus Profundus, who is a fair specimen of a malady not very unfrequently to be observed in our wards. C. P—— had a taste for chemistry when he was quite a boy, and upon several occasions horrified his venerable parents by his early scientific experiments. Once he wrote with phosphorus upon their bedroom walls, so that some ghastly letters gleamed at them in the dead of night when their rushlight accidentally went out, and they started with terror equal to that of the guilty Belshazzar at the incomprehensible writing of his doom. Upon the occasion of a small family party he mixed that faithful article of the tea-table, carbonate of soda, with pounded sugar just before it was to be eaten with red-currant tart, so that the said tart effervesced most energetically upon the plates of the guests and lost the charm of colour. During his apprenticeship, when, as became the dignity of his new position, he of course gave up childish tricks, he was noticed by his master to care little for anything but the chemistry of that early period of his career. True, he looked at the bones of the well-articulated skeleton that hung in the surgery cupboard; and he advanced in osteological study so far as to know the occipital from the astragalus; but his chief delight was found in calcining some bones and dissolving others. True, he learned the difference between exogens and endogens—between mammalia and insects; but his favourite occupation was to catch the gases that rose from the valisneria leaves in the aquarium, to experiment on every drug in the dispensary, and to compose and decompose multitudinous mixtures which were not prescribed for the patients in his master's day-book. When he entered this College, four years ago, his eyes gleamed with delight over the syllabus of our chemical professor's course, and he attended the lectures on his favourite science with a zeal and regularity that were to himself both profit and pleasure. He was always at his post, and between the hours of lecture was to be found in the library diligently mastering, step by step, the grand science that was brought before him. Books differing in opinion helped him to understand each other; and he often put his theoretic knowledge to the test of experiment. The other students knew well that he could help them in their puzzles, and he was often appealed to with success to solve some mysteries that had defied their efforts. He attended the other lectures of his year; he dissected; and was a diligent student

generally. He competed for honours in the classes of Anatomy and Physiology, but obtained only very low certificates; while of course he gained, as everyone knew he would do, the gold medal in the class of Chemistry, and his papers were such as have seldom been presented by any student of the College.

At length he came over to the hospital for clinical study. His honours at once secured for him the office of clinical clerk, and here he had many opportunities for considerable chemical research. He ingeniously managed always to secure for himself those cases in which some special interest attached to the examination of the secretions, and these he noted with a carefulness that did him the highest credit. But it may be observed, now that his clerkship is completed and he is pursuing his own way in the wards, that he often passes over some of the most important features of a case in order that he may be quite accurate about some, as yet understood, unimportant detail. It is said that C. P—— could tell you correctly all the daily changes in the urine of each case of pneumonia, chorea, and gout that has presented itself during the last twelve months; but that he would be puzzled to distinguish a case of pneumonia from one of bronchitis, and that there are many forms of disease of which he scarcely knows the names. A relative of C. P——, who was in the hospital some years ago, exhibited a similar affection, but it took another form; and the result in him was that he was thoroughly *au fait* in all chest diseases; his ear was tuned to the detection of the very finest departures from healthy sound; "he knew," as his fellow students used to say, "his Walshe by heart"; but he was sorely perplexed to make a diagnosis when examined for the office of physician's assistant. Indeed, the case was one that baffled him completely. He made out the presence of sonorous rhonchi in the chest; he was confident that he heard some fine crepitation at the junction of the middle and lower thirds of the posterior surface of the left lung—the resonance was defective there; and he occasionally caught, as it were, the dubious ghost of some grazing friction. On these points he was as clear as noonday; but he failed to see that the patient was suffering from measles.

The last class of cases that I wish to bring before you is, I am glad to say, far from uncommon in our hospital. Perfect examples we do not expect to find often; it is rare for any case to resemble exactly that which is described in books. Nature does not move in the narrow ruts or lines along which our thought seems, as it were, compelled to travel. But again I say it is useful to consider types; and—

CASE 4.—Orbicularis Goodman is a fair type of the class to which he belongs. His brother—(Case 5) Longitudinalis—is here also. Their family and early history is the same; they are very much alike. I shall point out their differences as I proceed. Both brothers diligently attended to their college duties, having prepared themselves to enter upon these studies by some acquaintance with general physics and with those laws of thought which regulate all forms of scientific inquiry. They studied equally each branch of knowledge; became competent, by their acquaintance with anatomy, physiology, and chemistry, to comprehend the principles of morbid change in both function and structure of the body; they attended lectures, when professing to attend them, with punctuality and regularity; but they did not waste time by going uselessly over the same ground again and again. They did not lose the continuous thread of information which a course of lectures can supply; but having gained that they used other means to confirm and enlarge their knowledge. They asked themselves and others, before commencing the study of a subject, what it was that they were about to learn. They acquired, as it is most important to acquire, some knowledge of the subject to be known; and thus they understood what it was they wanted to learn when they came to the hospital to use their own eyes, hands, and ears in the observation of disease. In their clinical work it may be seen that they follow this general plan. They attend for a time the practice of one physician or surgeon, and then for a time that of another. They pay special attention to four or six cases, endeavouring to select those which are examples of the same or of allied diseases; they compare them with each other; they compare them with written descriptions of such diseases; they endeavour to make out the causes of symptoms and their relations with one another; they hear what is said about them by the physicians and surgeons; they take time in their examinations, and go to see these cases in the morning as well as at the hour of visit; they master each case, and keep a careful record of it; they do not try too much at once; they endeavour to know thoroughly what they know at all; they are not afraid to ask questions; and they are very successful in the advance, not only of their knowledge, but of their power to know. There is this difference between them: the elder appears satisfied when he finds a case that corresponds exactly with a book; the younger is always trying to show his brother that the book is wrong. The one is disposed sometimes to fit his facts to the ideas he entertains of what facts ought to be and to strain them a little, sometimes this way, sometimes that, in order to make the fit complete and creditable; the other is so averse to believe that facts ever do correspond with statements that he sometimes looks at them through a distorting medium, and imagines that there are exceptions when there are only blank spaces or wrong entries in his own information. The elder sees things that do not exist; the younger as often fails to see those that do. The one is ever trying to verify the wisdom of the past, the other to show that it fails to meet the knowledge of the present; while the former looks somewhat hopelessly at the future of our science, the latter believes that it will witness the solution of every enigma, the unravelling of every tangled skein of truth. The two brothers, while they counteract, yet supplement each other, and help each other onwards in the pursuit of their common end, the acquirement of all that knowledge which, however imperfect it now may be, is yet the best that can at this time be brought to bear upon the sufferings and sorrows of their fellow men.

The outside phenomena of five groups of cases have now been brought before you; and in order to advance to a knowledge of their pathology I wish to point out the primary or essential fact in the departure of each from healthy action. This may often be found in the *absence* of some important principle or quality. Look at the *first* example, and see how certain defects disqualify him for the work he professes to have undertaken. He fails to see the greatness of that work. By his presence here it is assumed that he wishes to learn the science and art of medicine—i.e., to know all that can be known of the most complicated set of phenomena that can be studied by the human mind. He requires patience and untiring energy, but he exhibits neither. He fails to see the value of his time. He cannot hereafter make up for the opportunities he is now daily allowing to escape unimproved. There is a want of consideration, a want of common sense, in a man's undertaking a work of great magnitude and treating it as if it were mere child's play. Lives have been spent by some of the greatest intelligences of our race in acquiring and arranging the knowledge with which he ought to become familiar; and that man's intellect is defective who professes to study medicine and who takes no pains to do it. To attend lectures with irregularity, and to saunter lazily through wards filled with patients who might teach him what he professes to want to know, proves, I submit, a want of intelligence in the first case I have described; but, further, there is a want of honesty and want of heart. C. V——'s father lives in the country, and leads a laborious life. He is in constant and wearisome attendance upon the sick poor of a large union, or he is hurried from house to house to hear the oft-told tale of suffering and weakness—of miseries made tenfold worse by want. He spends the long hours of a winter's night in some wretched hovel, where the sorrows of a woman, because her hour has come, find *no* turning into joy that a man is born into a world so dark as hers. He has closed the dim eyes of some old labourer whose day of toil is done. The great mysteries of life and death surround him; he stands alone in his struggle with the sorrow and the suffering that beset him on every side; he has no colleague to cheer him in his work or to help his own wearied brain; all that he does is without the *éclat* of public position or the reward of fame. His family is large and his means are small; his wife performs household duties to which some fine servants would object; his daughters have but short school days, and then have to give out to others the little they have learned. It is all hard work in young Vane's home. And why? The father labours that his son may learn: he has placed him here amongst immense advantages; his small savings scarcely meet the hospital and college fees; but yet, while there is stint and toil at home, he saunters lazily about the wards and lecture-rooms, and never lightens, by the effort of one little finger, the great burden some part of which his broad young shoulders shou'd have now learned to bear. There is want of common

honesty in this, and want of heart; and this last he shows quite frightfully sometimes when he makes his visit to our wards. Let him not stare rudely at the patient just come in. Let him, if he will, handle, but handle tenderly, the palsied arm that has done much work when once it was strong as his. Let him not choose the wards for a rendezvous in which to chat idly with his friends about the boat race or the billiard match; but let him come with reverence and with uncovered head into the presence of disease or death, and feel that sorrow and suffering demand a respect which it is his honour and duty, as well as his privilege, to pay.

Leaving now the first case, the prognosis of which is by no means good, I wish to analyse the second much more hopeful specimen of student life represented by Superficialis Hurry, whom you will remember we found always in haste, and most ubiquitous in the distribution of himself. Praiseworthy as his energy is, he makes a vast accumulation of material which is of little use to him by reason of the confusion in which he leaves it. He has seized a fact here and another there, but he has not been able to bind them together. He often so learns the answers to a number of questions that he is "safe to pass an examination" if he is only fortunate enough to get the proper questions; but there are facts which lie between those questions and which throw light upon their answers, and these he has hitherto failed to see. The scraps of knowledge he has gathered are to him something like "cut flowers" standing in damp sand—varied and beautiful to look at, even doing something with the life that lingers in them but is quickly vanishing away; whereas they should be living things, firmly rooted in the earth they spring from; transforming crude into less crude material; raising the lower forms of matter into higher; assimilating much that is heterogeneous, and evolving new products as the result of their own inner life. What D. S. H—— fails to perceive is the existence of a deep-seated relation between all the facts that come before him; that they are, as it were, twined together by their roots; that they have a common holding to the earth they spring from, and that he must dig deeply who would learn their meaning; that underneath the surface phenomena he has scanned so slightly there are relations which cannot sometimes be seen or handled, but which may be appreciated if he would fully comprehend the phenomena he has witnessed. The manifold facts he has to learn and use resemble rather a mighty forest, with trees of an age's growth, whose brawny arms have other work to do than to bear sunwards their own leaves, and thus nourish their own life; for on them the ivy clings and plays its part, and their bark is stained by the busy lichen or is fringed by moss; while under their shade, and protected by their care, flowers of a thousand hues give forth their scent, for a few hours wave their fragile petals in the air, finish the work that is given them to do, and then pass away: where life in all its forms is moving with restless energy, and moving towards the accomplishment of one great end; where the roar of the beast of the forest not only does his bidding, but, as it shakes the dew-drops from the gossamer, drowns a whole colony in that tiny flood, and so feeds the dawning life we fail to see; where the insect in its search for food scatters the pollen from the anther, and thus helps to renew the form it lived upon; where life in its thousand forms finds its great bonds of union and transformation in the earth and air; the roots deep down in earth seeking and finding in the darkness, amid crumbled rocks and the ruins of past forest life, the very elements they need; the earth drinking in the rain that, as it falls through air, brings back again those seen and unseen fruits of their toil that the great live world above has filled it with; and over all the sky, with its marvellous, mysterious agency of light and heat, returning to all living things the powers that first called them forth or roused them to their toil. In Nature there is a wondrous unity of advancing purpose amid a vast circle of events; no link can be dropped from her mighty chain; nothing can be added thereto, nothing taken away. She is before us for patient and reverent investigation, and he will never learn "her secret meaning in her deeds" who is content with a hasty glance at the first facts that come to hand. No, he must trace each fact into its past and future; he must see how it came where it is, how it lives, and how it grows. He must follow the teaching, which Nature herself is ever ready to afford, that nothing is small, that nothing stands alone, that in darkness and "in silence mighty things are wrought," and that what we see is but the outcome of still greater things and forces as yet unseen. He must, then, work widely and work hard, but he must work deeply too, and in so doing his progress must be slow. He may, and will, find his knowledge less showy, but more real; it may even be thought less of by some around him, but it will be of far higher value to himself.

There is a caution, with regard to clinical study especially, which I would give to all who are in any degree affected with the malady of Hurry. It is that they should never allow themselves to sacrifice accuracy and thoroughness of information at the shrine of definiteness. There is something very charming, very easy to remember, in broad lines of distinction, and such lines are often highly useful; but they rarely go down to the bottom of a matter, and are often on the barest surface only. It may be enough, in order to enable you to distinguish between two particular individuals, to say that one wears a violent Albert chain and the other a broad-brimmed hat; but such characteristics do not by any means exhaust the differences between a dandy and a Quaker; and if they were taken to do so your generalisation might be broken to pieces by the experience of to-morrow. There are diseases which may sometimes be distinguished from others by the presence of one symptom: value it, but value it correctly; and remember that in every case you have a whole body for your study. And do not rest satisfied with applying some little fragments of your science to the mere fragments of a case; but bring all your knowledge to the interpretation of every case, and depend upon it you will not often find that you have one grain too much.

Now, let us see wherein it is that our *third*, painstaking student—our devotee of chemistry—is at fault. He has worked well at his favourite study; he has partially, but not utterly, neglected other portions of the full curriculum of education. Unlike D. S. H——, he recognises the importance of digging deeply in his work, but practically this deep digging is carried out only around his own favoured plant. He will examine its tiniest root-radicles, and the bristles upon its most distant leaves. He knows all its aspects, and has recorded with praiseworthy care every detail of its growth and change. But of other plants he knows but little; and he feels almost an approximation to contempt for those who do not move along the line that he has chosen. He recognises the marvellous interdependence of all Nature's works, and the analogous relation between all branches of science. He sees that "physical" science, to be complete, must embrace those properties of matter which have to do with the "proportion" in which one kind of substance combines with another; that the idea which we form of an "elementary body" is based upon the possession by that body of a certain group of physical qualities differing from those which are presented by another; and thus that physics and chemistry are not distinct sciences, but parts of one comprehensive view of the substances by which we are surrounded. Further, he sees that, in order to understand all these properties of matter, he must trace out their behaviour, not only in the so-called inorganic but in the organic world; and that a full natural history of any element cannot be said to be written until its presence and effects are known in both the vegetable and animal kingdoms; and yet further, that the knowledge of these must embrace not only the processes of health and growth, but those of disease and decay. Thus he is right in holding that all our science is but one great science, and that the lines which we have found it convenient to draw between this branch and that of the great sum of knowledge are always artificial and often wrong; that all systems of classification—whether so-called "natural" or not—are but human systems, tinged by error and dwarfed by ignorance; that the only really natural distinctions are those which Nature herself presents—viz., the distinction of individual from individual and of element from element; but that we are as yet by no means certain that we have absolutely accurate tests for the recognition even of these, as it were, final or primary distinctions. In perceiving them, however, we come face to face with Truth. When we attempt to advance further, all that we do is to gain glimpses of a mighty order that we fail to grasp; the arrangements we adopt follow the leadings of our own but partially instructed minds; and in all the statements that we can frame about them we of necessity introduce the elements of incomplete observation and of imperfect thought. But what C. P—— fails to appreciate duly are the greatness and many-sidedness of Nature's works, and also the present imperfection of our means for knowing them. True, an absolutely perfect science of Chemistry must embrace all knowledge; an absolutely perfect Physiology

must do the same. But we are far from having attained to these, and cannot reach our goal by starting from one point and advancing through one avenue alone. Dealing with so complicated a phenomenon as Life, we must approach it from many points: we must start from the side of "Physics," and also from that of "Chemistry"; we must advance also from those, as yet unreduced, "Vital" processes, and again from those of our own "Consciousness" and from the facts of "History." We cannot yet see the point in which all these converging lines may meet; but in the meantime, believing that they do meet, we must work and travel, not on one line alone, but upon each and all, and so approximate the knowledge we may even at the last fail fully to possess. Work, then, as deeply as you can, but look around you also. Do not neglect a fact because it stands, as it would seem, apart, or because it is of some order that differs from your own favourite study; do not think it worthless because you cannot verify it in one particular way, but learn to verify it in another: gain all the knowledge that you can from all sources, and bring it all to the interpretation of any phenomenon or process that you are endeavouring to understand. There are many life-processes that cannot be estimated by the thermometer or the scales; and they have a value of their own. The manner of respiration will often teach you more than the number of inspirations in a minute; the quality of a pulse will often give you more insight into a case than will its frequency; an expression of countenance will, not rarely, teach you more than a chemical examination of secretions.

The last cases (the *fourth* and *fifth*) which I brought before you were those in which time and labour were well spent, and would inevitably bring their reward. Before they commenced medical study the two brothers Goodman knew something of physical and mental science. Preliminary education cannot well have its advantages exaggerated, but I am far from thinking that feats of mental gymnastics in respect of classic lore have any direct influence on the success of a student of medicine. He must be "in good condition" mentally, and no man gets into that good condition without some "training." A part of this training is the study of the languages and literature of the past; but for its immediate influence upon his scientific career it is of more importance that the student should be familiar with modern languages, and especially with French and German. It is, however, of essential importance that he should be well versed in the physical sciences. No man can make much of anatomy, chemistry, or physiology unless he knows something definitely and scientifically of the great laws of matter. The fact of having studied these, of having learned the mode in which they are to be investigated, and the nature of the processes by which hypotheses are to be verified or refuted, will place him on vantage-ground in his studies here. He will understand what is the value of a "fact," what is the nature of a "law," and what is necessary in order to regard the one as proved, the other as established. And almost inseparable from a knowledge of physical science is an acquaintance with the nature and order of those processes of mind which are common to all kinds of philosophical investigation, which the child or the savage may apply with instinctive correctness, but which the man of science will use but ineffectively unless he has arranged and analysed them. I do not think that the medical student will be any the better qualified for his work by having his brain filled with metaphysical questionings or ontological speculations; but I am quite sure that a systematically arranged knowledge of the greater and simpler laws of reasoning and of thought will enable him to appreciate much more readily than he could without such knowledge the wide range of phenomena which will come before him here. Thus armed and fortified, the two brothers commenced their attendance upon lectures in this College; and they made, in the manner I described, appropriate use of those great advantages. I cannot but regard them as such, although some in the present day speak of lectures as though they were remnants of an antique species of torture, fit only for exhibition in the Tower of London, with waxwork models of our learned professors, as specimens of a crude state of education now happily extinct. But I think that the lecture has powers for good which nothing yet devised can supplant. The book brings the whole mass of information before you at once; the lecturer gives you day by day the proportion you may take in and assimilate. The book is a dead thing—a moveless, emotionless conglomeration of words, which you may stare at and try to comprehend, but which cannot see or feel your difficulty, cannot change its phrases, and cannot fill up those gaps in your knowledge which prevent your appreciation of its meaning. In the teacher you come in contact with a living man, who sees whether you do or do not comprehend his teaching; who can use simpler forms of speech, and by some trifling change of words make quite clear to you what before was dark as night; who can see where the links are missing in your chain of thought, and can supply them; and who can thus fit you for the work of self-teaching, which, to those who have learned something, is the most valuable of all.

The two brothers I have described, though agreeing in their earnest and successful work, differ in scientific method. The elder tests "observation" by "authority," and finds it wrong; the younger weighs "statements" against "facts," and finds them wanting. The one regards with all his affection, and seeks for with all his energy, the establishment of the uniformity of Nature's processes; the other as earnestly endeavours in those processes to discover, advance, or progress. What the scientific worker really needs are an appreciation and combination of the two; for in nature they are both present, and we may and do observe them both. Look at individual life, and see that some great processes go on in the same way from hour to hour, from year to year. There is the alternate diastole and systole of heart; the constant play of inspiration and expiration, with their effects on air, and blood, and tissue; there is the daily change from sleep to waking, from activity to rest; there is the daily disintegration of tissue, the excretion of waste material, and also the daily assumption and assimilation of fresh supplies. Further, there are recurrences, with wondrous order, of some physical changes—partly those of health, partly those of disease—at still longer, but yet time-ordered periods, and the seasons of this year have effects like to those of the years that have gone before. But with all this order, and as the result of this order, there is progress: the infant grows into the child, the child into the youth, the youth into the man. The changes of dentition and of puberty lead onwards to the full growth of the adult; and then, in its due time, decay comes surely on. Some diseases may appear, go through their well-known phases; observe periods that we can with certainty predict; but they have not been in that individual before, and they will not visit him again: they have done their work. All that he has passed through makes him what he now is; there have been recurrence and order, but also growth that does not return into itself. Yet look further, and see that this growth has its order also: lose the individual in the many, and then see that those things which occur in him but once, which even constitute his separate life, do recur, but recur in others; and so again we see the circle, but a wider one. But is there no progress of this larger group? Look at families, at races, at nations, and you may see that they, too, have their periods of infancy, of youthful follies, of angry passions, of wise discretion, of luxurious ease, of creeping feebleness, and dusty death; and while the one nation, with its one life, sinks away, another takes its place, and the great world is ever young. But the great world also grows, and—

> "I doubt not through the ages one increasing purpose runs,
> And the thoughts of men are widened by the process of the suns."

Look at our sciences from another point of view. See how in that of physiology, in its larger aspects, we observe an onward progress amidst the orderly recurrence of events. Not merely individuals but species become extinct; new species take their empty places, and lower give way to higher forms of life. Whatever may be the theory for its explanation, there can be no doubt about the fact that the life upon the world at this present moment has not the form it had; seeming uniformity of process has wrought out change, and that change is one of progress or advance. We do not exhaust the question of how this is, we only move it a few steps further backwards, if we admit the principle as readily as we see the facts of so-called "natural selection." Go back to the simpler types of life; imagine, if you will, that all the variety that now clothes the world has sprung from one common form; you must then admit that there was in it the possibility of divergence from the type, or, in other words, that it contained within itself the germ of all subsequent developments; and thus, in the only conception we can frame of primeval life, we see in its apparently simpler but really more complex order the mainspring of advance. We observe the same combination if we regard at an early period of its development the now living individual or species. It

is easy enough to trace life backwards until we fail to see the differences that lie hidden in some fœtal form, common to all kinds of fowl, to the donkey and the dog, to the monkey and the man. But do not let us suppose that differences, though hidden, do not exist. We may not be able to distinguish the one ovum from the other, and yet the difference between them is so great that one becomes the peacock and the other the Cochin-China hen; the one a Skye terrier and the other a learned Doctor of the Law. It is when brought face to face with facts like these that human science, grateful for what it is, should not trumpet forth generalisations to which it has leaped, to conceal its weakness, but should show its real strength in humbling itself before great truths that are as yet past its finding out.

Again, in the yet infant science of geology we may observe the same combination. We argue upon the supposition that the processes of past times were like those of to-day; we believe in the constancy of the operation of Nature's laws. But yet the result of all this is that the world's face has changed, and is changing still; that while the earth lasts, although heat and cold, summer and winter, never fail, they never fail to do their work, and that that work does not, so far as we can see, return into itself, but carries out some mighty plan, the mere alphabet of which we have as yet been able to learn.

Notice once more how both order and progress may be seen combined in the history of scientific systems and of philosophic method. Their movement is onward, but it often appears to return into itself; yet it does not thus return. It is not a circle that is described, but rather, as it has been said, a widening and ascending spiral, whose ultimate course we cannot now compute.

Lastly, see how in human life the one kind of law, by its constant and orderly operation, develops results of another and a higher kind. See how the physical forces are often determined in the direction of their action by the chemical constitution of the bodies in which they are displayed; how chemical actions are coördinated to produce results which cannot be expressed by chemistry alone, but require another set of terms, which we denominate the vital; how animal life is determined by mental conditions; how the latter often yield to social and moral obligations; and how marvellously they are all intertwined to produce that complex creation—a living man. How long the apparent conflict of these two elements will last in science we cannot tell. Where is their common point we cannot see; but as the circles of order widen they lose their apparent recurrence, and order and progress become, even in our own minds, one. The infinite circle is identical with the straight line infinitely produced. Our definitions fail, or contradict themselves, when we endeavour to carry them thus far; but we feel confident that there is no contradiction in the things themselves, and our finite minds can feel assured of the existence of some great facts that they have as yet failed to grasp, and may be convinced of the reality of an infinite, abiding, and eternal Truth in which all truths shall centre; in which is no error—no darkness at all, but which can now be only dimly seen or felt after amid the changing and passing shadows of time.

In entering upon our profession, then, you must take high views of its vast demands as a science and of its claims, not only upon your mental, but upon your moral nature. Avoiding carefully the errors I first described, see to it that you have untiring industry, but that your work is deep as well as broad. Strive to learn the inner, often-hidden relations of all branches of your knowledge, but remember that much is yet hidden, and that, therefore, you must approach truth from many sides. And, lastly, in your earnest work to know the laws of life, and in your hereafter daily contact with life—at its beginning, in its troubles, and at its close—do not, in recognising the divinely appointed order of all events, lose sight of that great divine plan of progress which will surely evolve the highest good out of much that now seems deepest evil. You will thus often see a moral purpose in the suffering you try—but try vainly—to assuage; a good in the death you feebly struggle to postpone. Regarding disease as fraught with meaning and purpose other and higher than the mere change of organ you can see and handle and record in your pathological note-book; looking on death as the fulfilling of some greater end than can be represented in the Registrar-General's returns; though often saddened, often baffled in your unequal conflict with these two great foes, you may see that they also have a work to do, perhaps more friendly than your own; and thus you will be led to feel, and that with a conviction no other profession could urge so strongly upon you, that though—

> "Suffering is permanent, obscure, and dark,
> And has the nature of Infinity,
> Yet through that darkness (infinite though it seem
> And irremovable) gracious openings lie,
> By which the soul—with patient steps of thought,
> Now toiling, wafted now on wings of prayer—
> May pass in hope, and though from mortal bonds
> Yet undelivered, rise with sure ascent
> Even to the fountain-head of peace divine."

A Clinical Lecture

ON

CASES OF PHLEGMON AND ABSCESS INVOLVING THE ABDOMINAL WALLS.

Delivered at the Middlesex Hospital during the Winter Session, 1893,

BY J. W. HULKE, F.R.C.S.ENG., F.R.S.,

PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; SURGEON TO THE MIDDLESEX HOSPITAL; CONSULTING SURGEON TO THE ROYAL LONDON OPHTHALMIC HOSPITAL, ETC.

GENTLEMEN,—The cases to a review of which I invite your attention to-day are instances of phlegmon and abscess involving the abdominal wall. When we consider the large extent of the abdominal parietes, how exposed they are to external violence, and how extensive are their anatomical connexions, the large amount of subcutaneous, paramuscular, and subserous connective substance comprised in them, and the large quantity of fat this usually contains, it may, perhaps, to some of you appear singular that so few instances of these inflammatory disorders implicating the abdominal wall are received into our surgical wards. You will not have been many years engaged in practice before you will have found that these cases fall naturally into two groups—one comprising those cases in which the phlegmon or abscess originates in and usually continues restricted to the abdominal wall, and the other group comprising those cases where the abdominal wall is implicated in the progress of a phlegmon or abscess the focus or starting-point of which lies elsewhere—it may be near or remotely situated. The first is quite a small group, its cases are infrequent; but the second is a wider group and includes the greater number of cases you will meet with. Probably in the first group the most usual cause is mechanical violence—e.g., a blow or a severe squeeze. Such a case was the following not long ago in Bird Ward. In the case-book the patient is described as a woman aged fifty-three, a stout, heavy person with a large, fat, pendulous abdomen. She had fever, and she looked very ill. In the lower part of the front of her abdomen was an extensive red swelling without definite margin; and in the middle of this, nearly midway between the umbilicus and the pubes, was an oval patch of gangrenous integument two inches by three inches across. Along its lower border the detachment of this slough had begun, and from the narrow groove of separation between the living and the dead part oozed a thin puriform discharge, in which floated small shreds of necrosed connective tissue. She said that twelve days previously, whilst standing on a chair to wind up her clock, one leg of the chair broke through a defective place in the floor of her room, causing the chair to tilt, which threw her down, and in falling the front of her abdomen struck violently upon the top edge of the chair-back. This hurt her so much that, when those who went to her aid lifted her up, she found that she could not stand, and she was compelled to lie on her bed during several hours. However, late on the same day, with help, she managed to get to the casualty department, where she was examined and prescribed for. She continued to be seen as an out-patient during several days, when, the consequences of the injury appearing to be more grave than had at first been thought, she was made an in-patient. Here the local disorder was obviously a phlegmon. A violent blow had very severely bruised her big, hanging abdomen, not merely superficially ecchymosing it, but probably also causing an extravasation of blood in some

quantity, occasioning a hæmatoma. The patient being allowed to be up and going about her affairs, the bruised part was unavoidably subjected to pressure and to chafing by her linen, very likely not particularly clean; some minute breach of surface might have occurred, allowing the ingress of septic noxæ, and this provoked inflammation of the weakened tissues, ending in their gangrene. At the time the patient was taken into Bird Ward the phlegmonous process was already arrested, the beginning detachment of the slough afforded a sufficient outlet, and all tension had ceased. The parts were lightly dusted with iodoform, and thickly sprinkled with powdered boric acid, over which was placed a compress of cotton-wool dipped in a saturated solution of boric acid and wrung nearly dry. Two days later the slough was completely separated and thrown off, leaving a sore which soon cleaned and began to cicatrise. When the sore had decreased to one-third of its original size granulation appeared to cease, and for a day or two no progress seemed to be made. Three skin grafts were therefore set. Of these, two took, and three weeks later the wound was completely and soundly closed. Had this woman been kept in bed from the time of her accident, had the bruised part been protected from further injury, had ordinary measures for asepsis been enjoined, and had a rag dipped in Goulard lotion been applied it is likely that the swelling immediately resulting from the injury would have disappeared and the occurrence of a phlegmon have been averted. Here is another case, also one of the first group. A little boy aged four years was admitted into Percy Ward. His flushed cheeks and high temperature told of fever. In the lower part of the front of his abdomen was a conspicuous, large, prominent, red, tender, aching, swelling. This manifestly was an acute abscess. His mother said that nearly two months previously the child had been knocked down by a cab in the street. He seemed soon to recover from the shock, and she hoped that he had not been seriously hurt. He had before had excellent health, but soon after the accident he appeared to be ailing. Then she noticed the swelling, and as it increased she brought him to the hospital. The abscess was opened. About eight ounces of greenish pus with broken-down blood-clot escaped. Three weeks later the abscess cavity had closed, and appearing convalescent he was allowed to be taken home.

Here also, in the absence of symptoms pointing to other than a local origin, and with the distinct statement by the mother of the child's good health before the accident, we appear justified in assuming that the abscess arose from suppuration of a hæmatoma and in causally connecting this latter with a mechanical injury sustained when he was knocked down. Probably the hæmatoma was intermuscular, since had it been subcutaneous, ecchymosis would have soon ensued and have been noticed. If this view of the case is correct it must be regarded as fortunate that the abscess pointed externally. Perhaps this is referable to the hæmatoma having been inter-muscular and not subserous, in which latter instance the path of least resistance might have been through the peritoneum. You had not very long since in Percy Ward an opportunity of watching a case where this last presumably occurred. The patient, a little boy, was admitted with an acute inflammatory swelling in the lower half of the left side of the front of his abdomen, also the sequel of an injury sustained by his having been run over by a cab. This was obviously an acute abscess in the abdominal wall. The child's health had been good, and no symptoms indicating visceral injuries had supervened. It was intended to give him nitrous oxide gas and open the abscess, but before this was done a notable subsidence of the swelling became apparent, and soon afterwards several ounces of pus were voided through the rectum. It is certain that here the abscess in the abdominal wall had opened into the gut, probably into the sigmoid flexure of colon; and that this occurrence had been preceded by the formation of adhesions between the parietal and the visceral peritoneum, so barring off the sac of the peritoneum from contamination by the escaping pus From the formation of a communication between the abscess cavity and the gut there arose the possibility of the entrance of fæcal substances into the former; but this did not happen, and so the ill effects incidental to it were absent. In cases of the second group, which I shall soon proceed to consider, you will, however, see that it is a usual occurrence.

In the three cases I have just related you will have noticed that the injury—a severe blow or squeeze—did not initially cause any breach of the external surface. Open wounds in the abdominal wall do not usually provoke much spreading inflammation unless complicated by the lodgment of contaminating substances; and, as you would naturally expect, clean incised wounds, even though extensive, are, of all, the least liable to such ill consequences; but severely bruised and badly lacerated wounds of the abdominal wall also often do remarkably well even though the surroundings of the wounded are insanitary and the care and attention that can be given to them are very imperfect, as must often be unavoidable in warfare, particularly when this is carried on in half civilised or barbarous countries. Thus I well remember the circumstances of two wounded men both lying at the same time in one of the huts of the General Hospital in the front before Sebastopol. One, an engineer, had the soft parts over the iliac crest torn and the crest itself bruised by a grazing cannon ball. The sloughing which followed this injury was very restricted, later a fragment of the crest exfoliated, the wound closed, he made a good recovery, and he is still alive. The other, a private in an infantry regiment, was hit on the right haunch by a fragment of an exploding shell which tore out a patch larger than the palm of the hand from his flank, comprising the muscles of the abdominal wall, and leaving behind only the peritoneum with a thin film of subserous fatty tissue, through which the intestines were apparent as if viewed through a piece of wetted tissue paper. I was greatly impressed by this evidence of the tenacity and elasticity possessed by the peritoneum. Strikingly little inflammation ensued in the borders of this ghastly wound. The torn muscular edges cleaned, granulations sprang up upon them, and also covered the peritoneum. The large area of the wound contracted, and after several weeks the wound was so small and the man's general condition so good that he was removed from the front to a base hospital; but where such a wound is complicated by the presence of infective substances, which cannot be completely removed or neutralised, the consequences—as you all, at our present standpoint, now understand—may be widely different. Let me, by way of contrast to the two preceding cases, mention to you a third. Nearly at the same time I received into one of my huts a bombardier whose right haunch had literally been shattered by a shell which burst close to him. The fleshy parts of the buttock, torn from the flank and perineum, hung as a great rug from the back of the upper part of the thigh. The innominate bone was comminuted. Below, the lower end of the rectum, with the prostate and base of the urinary bladder, was extruded, but neither viscus was opened. The immense wound, blackened by powder smoke, was also very soiled with dirt and many little pieces of straw from the bottom of the ambulance waggon on which he had been hurriedly laid with others wounded and brought to the hospital huts. Through the great pressure of circumstances at that moment—for the number of wounded was considerable—no precaution had been possible to guard the wound against soiling. An endeavour was made to remove all extraneous matters, but it was unavoidably imperfect. Diffuse phlegmonous inflammation rapidly supervened; it quickly overspread the trunk and lower limb, and on the third day he succumbed. He was a remarkably fine muscular man. The immediate shock from this terrible injury was less than might have been expected; he rallied well, and the immediate cause of death appeared to me to be acute septic intoxication. But I find I have been travelling far away, and I will return to the practice of our own hospital, which should be for you a very familiar field. You will, I assume it as granted, readily comprehend that foreign substances are often lodged in a punctured wound and elude immediate detection, especially when the wound is inflicted by a relatively obtuse implement. There was a good example of this some time since in Forbes Ward, at that time occupied by surgical cases. The patient, a youth aged eighteen years employed on a farm, slipped off a stack and became impaled on a stake which, entering at the pubes, passed upwards between the skin and the recti muscles to above the level of the umbilicus. The stake was withdrawn and he was brought in a cart to the hospital. This injury was followed by extensive phlegmonous inflammation of the abdominal wall, necessitating free incisions, through which were extracted pieces of his clothing and of bark.

A large proportion, perhaps the majority, of instances of phlegmon and of abscess originating in the abdominal wall are, then, attributable to mechanical violence.

Of [others in the first group proceeding from other causes],—e.g., the liquefaction of a gumma—I shall not now speak. As I have already told you, this group is small, whereas the second group is comparatively large, its cases being relatively numerous. In the time that remains I will notice some cases of this latter group. Note, first, that the focus whence the abdominal wall is invaded may be near or distant; it may even be very remote, so distant as for a long time to elude detection. As aptly illustrating invasion of the abdominal wall from a near-lying inflammatory focus I cite the common course of perityphlitic suppuration, of which our wards are seldom long without examples. In most of these the nature of the disorder has been rightly recognised, and this so early that the inflammatory process in the abdominal wall has not passed beyond the phase of œdematous infiltration, when it is cut short by a timely incision into the abscess cavity in relation with the cæcum, its appendix, or the ascending colon. But this practice, now adopted by all surgeons, is of comparatively recent date, and I have thought that an able paper by the late Professor Sands of New York, in which he advocated early incision in cases of this kind, marks the turning point in the history of the treatment of perityphlitis, when expectancy, formerly the rule, began to be replaced by early surgical intervention. His early sudden death from heart disease, in the full possession of mental vigour, at the most active period of his surgical career, was a loss felt not only by his countrymen, but also by many on this side of the Atlantic, who knew and valued his writing, and by none deeper than by those who also knew the man.

Even now the existence of perityphlitis is occasionally overlooked and the significance of its symptoms misread. Not so very long since you might have seen in Bird Ward an example of what such oversight may lead to. On April 2nd, 1890, a very obese woman, of mixed European and Oriental parentage, was admitted into that ward. She had fever, a dry brown tongue, and was extremely feeble; in short, she had the aspect of one very gravely ill. The lower part of the right side of her abdomen was occupied by a large phlegmon, which extended inwards across the corresponding semilunar line, passed outwards over the Crista Ilii to the buttock, which was enormously swollen; and below the groin involved the upper third, or rather more, of the thigh. The buttock, centrally, was so elastic as to give the impression of there being deeply placed fluid, and over this area the skin had a dull red colour, its cuticle was blebbed, and in the subcutaneous tissues gaseous crackling was very distinct to the touch. The patient, a highly intelligent person, said that being then, as was supposed, in good health and without previous ailment, her present illness had began on the 8th of the preceding month with frequent severe rigors and slighter shiverings. Having in earlier life been exposed to malaria, and having some knowledge of the fever such a miasm occasions, the significance of her symptoms was not at first appreciated. Later she was thought to have rheumatic fever, and she was placed in a hospital, where she remained under treatment by drugs until, finding herself becoming steadily worse, her friends removed her to her home and brought her thence to us. At this time she plainly had a very extensive and advanced gangrenous cellulitis or phlegmon of the abdominal wall, buttock, and thigh, with also septic intoxication. The scanty information elicited was insufficient to elucidate the origin of this. However, the treatment instantly required was not doubtful. Free and deep incisions were made into the phlegmon, giving escape to bubbles of fetid gas, to thin, discoloured, very offensive pus, and to large shreds of necrosed connective tissue. An attempt was made to check putrefaction by the free application of a solution of zinc chloride (forty grains to one ounce of water) and a large absorbent antiseptic dressing was put on. Next day other incisions were made and more sloughs were drawn out. Asepsis could not be attained. Fever continued and her prostration increased, notwithstanding the free administration of alcohol. On the following day pneumonia was evidently present, and on the fourth day after she entered our hospital death occurred. At the necropsy Dr. Voelcker found that the focus whence this huge phlegmon had started was an abscess with sloughy walls in the right iliac fossa. From this suppuration had spread upwards behind the ascending colon to the level of the middle of the kidney. Into this abscess cavity projected the vermiform appendix, which had in it one actual perforation and two small gangrenous spots. The front of the cæcum and ascending colon were agglutinated to the parietal peritoneum along and above the pelvic brim, and the great omentum where lying upon the middle part of the ascending colon was also fixed by adhesions to the abdominal wall. The perityphlitic abscess had crossed the outer edge of the Musculus quadratus lumborum, and it had perforated the abdominal wall just above the Crista Ilii, so invading the buttock, where it had originated the gangrenous cellulitis which had so rapidly overrun this region, the abdominal wall, and the thigh. Can we doubt with our present experience of the good results obtained by early operative intervention in instances of perityphlitis that timely surgical interposition might here have saved a life?

I would ask you to bear in mind that, whilst many abscesses invading the abdominal wall from a focus in the right iliac fossa are primarily perityphlitic, all have not this origin. I will now cite such an instance. Some of you, I know, watched with interest this remarkable case. The patient was in Founder Ward, and was a man aged fifty years; he was admitted into the hospital on Feb. 9th, 1893. He had in the right side of the front of the abdomen, above the outer end of Poupart's ligament, distant two inches and a half from the Spina antica illi, the external orifice of a sinus which led into the iliac fossa. Below this, in the upper part of the anterior and outer aspect of the thigh, was an oblong, prominent, conspicuous swelling, pressure on which caused the extrusion of pus from the orifice of the abdominal sinus. At the inner end of the groin was the scar of a recently healed incision. Deep in the iliac fossa an abnormal resistant fulness was felt. His complexion was sallow, his gums showed the blue margin characteristic of lead, and his bowels were habitually costive. He considered that he had had fair health until about twelve months previously, when he was laid up by a severe illness attended with great pain in the abdomen. This at first was regarded as a lead colic, but it did not yield to remedies. Later his abdomen was very swollen. Then an abscess pointed at the inner end of the groin and was opened by his surgeon; it closed and left the scar we saw there. Subsequently an abscess pointed and broke in the position of the sinus, persisting above the outer part of Poupart's ligament. His surgeon wrote that he had at one time regarded the case as one of perityphlitic abscess. After allowing him a few days' rest to recover from the exhaustion produced by his journey from the country he was placed under an anæsthetic and the swelling in the thigh, the sinus over Poupart's ligament, and the iliac fossa were explored. They were found filled with a soft myxomatous tissue centrally necrosing and suppurating. This neoplasm had invaded and infiltrated the Iliacus muscle and also the ventral surface of the Ilium, which was roughened by tufts of small crowded osteophytes. Anteriorly, the myxoma infiltrated the posterior wall of the cæcum and ascending colon, forming together with these a mass, in endeavouring to remove which the danger of opening the lumen of the gut was very present to me. It became obvious that although large masses of the neoplasm were removed with the scoop complete eradication was not attainable. The patient bore the operation well. On the third day, when the dressings were being changed, the discharge was found unmistakably fouled by fæces and fetid gases escaped. There could not be any doubt that the wall of the gut had given way. His condition, with occasional slight and very transitory improvement, progressively deteriorated. The iliac fossa again became filled with a large mass of tumour, which also extended upwards into the flank. Then, realising that his end was approaching, he had himself removed to his home, and after reaching it he died within a couple of days. His friends could not be persuaded to allow a necropsy. Here, then, an abscess which invaded the right inguinal region of the abdominal wall had its origin in central necrosis and suppuration of a deeply seated myxomatous tumour. Such a case is very exceptional; but analogous circumstances are not so very rare in connexion with certain intra-abdominal cancers. The following is an example.

A stout, grey-haired woman aged fifty years, but in appearance much older, addicted to taking as large quantities of ale and whisky as she could get, with a sallow complexion, flaccid cheeks, and face expressive of much suffering, was admitted into Bird Ward on July 21st, 1892. Centrally situated below her umbilicus was a conspicuously prominent red, glossy, acutely tender swelling, peripherally ill defined, of oval outline, measuring about four and a half and six inches in its long and short diameters. Peripherally brawny, centrally it was soft and fluctuated. She had a foul, dry

tongue, no appetite, and a high temperature. She told us that her health, which she had previously regarded as good, had been failing for nearly one year, during which time she had lost weight and had often had pains in the abdomen which she "laid to wind." These pains, she said, "came and went," and, she added, "they were sometimes worse than those of labour." As the swelling in the abdominal wall was obviously a phlegmon it was freely incised. Several ounces of very offensive pus and also masses of necrosed connective tissue were removed. The boundaries of the space whence these issued were scraped with a sharp scoop, after which the cavity was flushed with a solution of mercuric chloride, and an absorbent antiseptic dressing was applied. Next day her condition seemed slightly improved; but this amelioration was not sustained; a profuse puriform fetid discharge continued. Asepsis could not be obtained. She lost flesh and her strength continued to fail. In September a considerable intra-abdominal mass under the site of the sinus left after the phlegmon was detected. Obstinate diarrhœa set in and on Sept. 9th, 1892, she died, fifty days after she entered my ward and somewhat more than one year after the date of the first symptoms referable to the intra-abdominal disorder. Dr. Voeicker, by whom the necropsy was made, found below and to the left of the umbilicus a sinus passing through the abdominal wall into an intra-abdominal mass firmly adherent to it. This mass, of the size of a fœtal head at term, comprised part of the Omentum majus, of the ascending, transverse, and descending colon, and small intestine infiltrated and agglutinated together by a neoplasm which to the unaided eye had appearances characteristic of cancer. This view of its nature was confirmed by microscopic examination. Here a cancer, perhaps originating in the omentum, had spread to the surrounding parts and increased until it formed with them a large tumour. Centrally necrosing and liquefying a foul abscess formed in it, which invaded and traversed the abdominal wall, inducing in this the phlegmon which brought her into the hospital. I may add that in the central hollow in the tumour a considerable cauliflower-like mass projected from its wall, and that the coats of the duodenum also were much thickened by cancerous infiltration, which had extensively broken down and of which little fungating bunches projected into the lumen of the gut.

Gentlemen, the clock tells me that the hour is spent, and I find that I have done little more than touch the fringe of the subject. Did time allow I would set out before you cases illustrating the invasion of the abdominal wall by abscesses which had their starting-point in an ulcer seated in one or other of the several segments of the digestive canal, or which began in the kidneys, in the liver, and even in the pancreas, or had their origin in the pelvis—of which women supply so many examples, but which are not restricted to their sex; and, these having been dealt with, the subject would still be unexhausted. I hope to return to it at some future time as occasion arises.

An Address
ON
EXPERIMENTAL CRANIOTOMY AND DIAGNOSIS OF CEREBRAL ABSCESS.

BY PROFESSOR AUGUSTO MURRI, M.D.,
PROFESSOR OF MEDICINE IN THE UNIVERSITY OF BOLOGNA.

Delivered on Nov. 30th, 1894, before the Lombard Medical Association, and specially reported and translated for THE LANCET.

GENTLEMEN,—When your eminent President conferred on me the honour of an invitation to discuss before you some subject deserving of your attention my wish to comply led me to an assent so ready that it afterwards struck me as almost precipitous. The choice of a subject proved difficult. If I now inform you that I am about to treat of some of the reasons which justify, or at least necessitate the study of, craniotomy it is because I think the subject will be interesting to all. One hardly knows whether the subject is more a medical or a surgical one, but it seems to me that no one who has made a study of the healing art can be indifferent to it. I therefore hope that none of you will disapprove of it. At this critical moment, when it seems that we are about to gain the mastery over one of the most terrible maladies, the discussion of another disease, which, though serious, is rare, lacks the power to arouse any great enthusiasm or hopes. But the clinic has not the privilege of a laboratory which may follow out a research to its extreme limits; it must cease where facts fail, and therefore the progress is sure but slow. Nevertheless, those among my audience who work in the laboratories will not consider my subject extraneous to them, since the tree from which modern brain surgery has derived such beneficial fruit has many of its roots in the ideas suggested by experimentalists. Before continuing I must confess that I speak as a medical practitioner, not as one of those numerous clinicians who study from the actual cases things which could as well be learned from any chemist, histologist, or bacteriologist who had never entered a hospital. The patient offers facts well known to the anatomist, physiologist, chemist, pathologist, and so on, but also other facts which none but a medical practitioner can perceive, and these constitute the actual wealth of the clinic. This I know is the old-fashioned clinic, but it will be the clinic of ages, though its brilliance may not be dazzling. This modest and useful clinic is also a branch of science; and, indeed, do we not in a great measure owe to the symptoms which medical practitioners have noted in patients all that we know of the brain, which is precisely the organ of which I am about to speak? The clinical student, as the observer and interpreter of the phenomena of the mechanism of the brain, knows, however, that progress in this path is arduous and slow. Like all other scientists, he must resign himself to await the solution of a thousand problems. But the clinical student is not only a scientist, he is also a man called to the aid of his suffering fellow creatures, and if as such he must always work in a sphere free of all incertitude work would no longer be possible to him. Resignation would cease to be a virtue; he must act while still awaiting the solution of those scientific problems. That scientist is most to be commended whose conclusions are most circumspect and precise; he must wait for clearer lights before making assertions. The medical practitioner, on the other hand, is obliged to act either in total darkness or in the faint light of a distant dawn. Science is not only for posterity. A science, however advanced it may be, only constitutes an elementary knowledge, since it suggests more questions to be answered in the future than there are answers in the past. As Goethe used to say: "Every problem that is solved gives rise to hundreds more." Blessed are those scientific deductions which can be safely applied to daily practice, but woe to us if our only means of influencing the vicissitudes of humanity were through fixed scientific deductions. When scarcely emerged from speculation, and entered into one of the active paths of life, man soon becomes aware that the ground is trembling beneath him. A general who is arranging the plan of a campaign, a financier who introduces a new system of taxes, a legislator who promulgates a code, an agriculturist who starts a new method of cultivation—all obey the precepts imposed by their respective sciences; none of these find their practical problems so free of unknown quantities as to render their prevision of the result sure and unfailing. Indeed, history is full of examples showing that the most reasonable previsions are often fallacious, because in every work of humanity there is always a want of knowledge of the factors of which the practical problem is composed.

It is no wonder that even a medical man has often to act with an incomplete knowledge of his problem. Some people have a characteristic aversion to anything that is not exact and sure. This gift, I repeat, is excellent in the pure scientist, but in practice it tends to restrict the coöperation of medical art to those cases in which the unknown quantities of the problem are eliminated. Thus, in the subject I have chosen, many hold that the cranium cannot be operated upon unless one is certain that the surgical instrument will find the lesion of the brain in the exact spot and exact conditions foreseen before operating. This numerous party has for its leader the well-known Bergmann. His work on the surgical cure of cerebral diseases[1] guides the hand and the mind of the greater part of surgeons. Clinical practitioners are for the most part of the same opinion. Sahli writes: "I am entirely of von Bergmann's opinion that cerebral surgery must first of all win favour by a choice of absolutely accurate

[1] Die Chirurgische Behandlung der Hirnkrankheiten. Berlin, 1889.

cases." Professor Martius[2] says: "Bergmann's[3] book on the brain, written with a perfect mastery of the subject, constitutes unconditional authority." But, however eminent the author may be, and however admirable his work, I must confess my dissent from the fundamental thought which underlies it. If I am obliged to mention the name of this eminent surgeon too often let it be understood that it is on account of the preponderant importance that his word on the subject has over that of others who profess to hold the same opinions. Professor Bergmann clearly states that "it is evident that he wishes to put the interests of the surgeons in the first place." According to him, or rather to his opinion, it is better to restrict the limits of surgery rather than enlarge them. Nowadays, holding the opinion that an operation is *per se* entirely without danger, one is inclined, notwithstanding the uncertainty of the diagnosis, to use the lancet and the scalpel in order to see whether there is some morbid growth to be removed. In other words, we are inclined to be daring without reflecting what should be the reward and aim of audacity. Bergmann does not intend to detract from the powers of surgery, although in his present studies he is trying to find, above all, the conditions in which an operation has the greatest probability of success, and limits himself to such cases. In doing this he omits many cases which, under more favourable circumstances, might have been operated upon. But he "does not wish to leave to chance that which should be exclusively the result of a critically weighed experience and of a strictly scientific proof."[4] This fundamental thought runs through the whole work. Thus, on p. 110 he repeats that "only a clinical diagnosis can ensure progress in the efficiency and power of the operating surgeon"; and on p. 176: "I cannot excuse the surgeon who, believing in the slightness of the danger of operations, is inclined to operate without much thought to see whether it will succeed in the case. I shall always be opposed to this aimless proceeding (*planloses Vorgehen*). On the other hand, I think it is not only allowable, but absolutely obligatory, to make use of what has been furnished us in experiments on animals at the bedside of a patient. ..... I expect true progress in cerebral surgery from a wise limitation." There are too many things in Bergmann's opinions that do not seem to me quite fair. The interests of surgery are doubtless to be respected, but morally they are as nothing compared to our duty towards a man who is dying; and when he grants that by following his advice we should be leaving without an operation many cases which might be beneficially treated by the surgeon I begin to doubt whether his advice can be ethically justified. Why should we renounce a possible good? The morbid processes of the brain, which surgery is called upon to heal, are almost all possibly fatal, and a dying man has not only the right to demand of us a certain cure, but also that which for lack of any certain means offers his only hope for relief. Which of us, knowing that some person dear to him is suffering from an abscess or an intracranial tumour of doubtful diagnosis, would watch him slowly, surely, cruelly dying without attempting the only expedient that might save him? It might be an exaggeration to assert that the act of operation in itself is innocuous, but in the face of the most serious suffering and the gravest prognosis I should place little value on the objection. If a man were drowning and begged you to give him a rope, would you dare to reply that *perhaps* the rope might not be strong enough? Unfortunately, none of our remedies are absolutely sure; none have an absolutely beneficial action free from noxious qualities. It is, I allow, a mere difference of degree, and opening of the skull in certain doubtful cases may give more reason for fear than hope of success. But I repeat that intracranial diseases are so serious that the precept of "do no harm" cannot be applied to them since the condition of the patient can scarcely be worse, while the benefits that might accrue are great. I can well understand that, as far as the *amour propre* of the operator is concerned, there would be little temptation to open the cranium if it were only to leave the patient in his former condition.

Modern surgeons have grown accustomed to so many triumphs. I admit, in so far as the interests of the operators are concerned, it would be preferable to follow Bergmann's advice—that is, to operate only in the few cases in which the result would undoubtedly be beneficial; but the interests of the patients oppose this. Science, as I have already remarked, must serve for our contemporaries, and it is to the medical practitioner that the duty falls of making use of all scientific discoveries and deriving from them the greatest possible use and service. Modern science shows us how to cure chronic cerebral abscess. Now, to deny the advantage to some people of this discovery because it cannot always be strictly applied would be to place the method of proceeding before a love of humanity, and if such a thing were blameworthy in a scientist of a laboratory it would be unpardonable in a medical man who works by means of knowledge, but whose aim in working is and must be charity. It is certainly a fine thing for a master to aspire to give to all surgeons some unfailing rules of conduct, and it is also well for him to severely reprove that blind method of working which is so convenient for ignorant men and quacks. But it would be unfair to deprive the present generation of the benefits which modern knowledge has conferred only because the method of adopting them has not yet been made clear. Here, indeed, there is not a perfect uniformity between scientific and practical aims. That semi-knowledge which in a scientist only serves as a stimulus to research is already a power to the practitioner. Attentive observation, however, assures us that absolute knowledge never comes directly to the practitioner, but little by little, by means of continual corrections. It would no doubt be preferable if practical rules were turned out ready made from the laboratory, but this is impossible, because, as has been frequently said, the conditions of an animal that has been experimented upon are similar to, but not identical with, those of a sick man. Although experimental science has already taught us a great deal in the normal and abnormal action of the brain, it nevertheless is true that the natural history of an abscess, a tumour, or thrombus in the sinuses of the human brain must be told, and has partly been already told, by means of observations of the sick man. Thus, although experimental physiology has taught the surgeon many things, the lessons of most value to him are derived from his observations during operations on a diseased human brain. If by an aimless proceeding (*planloses Vorgehen*) we are to understand the opening of the cranial cavity wherever it may be, or for whatever reason, we should certainly all be of the opinion of the Berlin clinic. If the ignorance is merely individual, to operate for personal enlightenment would be wrong; but if the ignorance is the result of an inability to obtain actual knowledge it is an absolute duty to procure enlightenment even by means of operating, providing the operation be not harmful. There is no doubt that sometimes one operates on the abdomen without absolute need, and this is sometimes undeniably attended with ill results; but is it possible that anyone would open the cranium without expecting to find a morbid growth and without attempting to remove it? True, presumptions may have but a weak foundation; they may be aims not entirely justified, but true experience is gained through the mistakes made. The clinic can teach what the laboratory never will—that is, whether, how, when, and up to what point a brain with a tumour, an abscess, or a thrombus of the venous sinuses with a cicatrix causing epilepsy can be operated upon without danger or with a good result. If this is a *planloses Vorgehen*, then there exists no remedy, not even the best known, which does not partly originate in this very modest beginning. How much digitalis has been used during the last twenty or thirty years in physiological and chemical laboratories? It is certain that the knowledge we have acquired is valuable and precise, but the careful experience of the clinic, the errors of some imprudent practitioner, and chance poisonings become our safest guides when we wish to profit by the wonderfully beneficent action of this plant. So true is it that, even after continual experimental researches, we have not yet succeeded in explaining the reasons for the rules which experience has sanctioned. Not even the happiest clinical applications of experimental knowledge can be entirely exempt from a certain amount of conjecture and practical correction. Bergmann says: "If in experiments on animals the extirpation of a part of the skin has been found useful the same course must be applied to analogous cases otherwise incurable in human disease." I agree with him, but, nevertheless, there is no identity between the dogs of Munk, Heidenhain, and Novi, in which the extirpation of the entire motor zone on one side arrested convulsions, and the patients cured of epilepsy by the removal of a splinter of bone or of a cicatrix on the skin; man's brain is often so much changed by the continual influence of trauma that the immediate action of excitement is not

[2] Die Hirnchirurgischen Operationen, p. 10. Leipzig, 1891.
[3] Beiträge zur Lehre vom Hirnabszess, p. 66. Berlin, 1891.
[4] Op. cit., p. 3.

only to produce a fit of convulsions, but to slowly modify the brain as regards its nutrition and all its functions. I repeat that it really becomes a different brain from what it was even after the splinter or the cicatrix has been removed. It is, therefore, a different thing to arrest an epileptoid convulsion produced by the experimentalist in a dog and to cure epileptic neurosis produced by trauma in man. There may be some analogy between the two phenomena, but I do not think that "the cases of traumatic cortical epilepsy entirely correspond with the result of the experiments in animals." Bergmann[5] asserts this, led away perhaps by the natural and universal desire of acting upon scientific deductions; but the truth is that the final and absolute decision as to the efficacy of a surgical cure for traumatic epilepsy appertains to the experience of the clinic, which will certainly not proceed without a pre-established method, but will meet, as it already has met, with many unknown quantities and surprises; thus a certain amount of *planloses Vorgehen* must be encountered even in subjects which, superficially examined, seem the most positive. And can one wonder at it? Human pathology is made up of a number of phenomena peculiar to itself, analogous to, but not identical with, others, and both physicians and surgeons must experiment on them; therefore, they must act as all other experimentalists do. To gain knowledge they must make proof after proof, but always on these same phenomena, not on different ones; therefore, a state of twilight must always precede the light of perfect knowledge, and consequently a period of uncertain action, which it would be unfair to call a *planloses Vorgehen*, is inevitable if we would attain to a possession of safe rules—a true and worthy ideal of practical life, an ideal to which one attains through a direct knowledge of facts, not through deductions more or less like the truth. Do not think from this that I am one who does not respect the knowledge that inspires, guides, and illustrates every clinical experiment, but I hold that they are not the only means of deciding as to the utility of a curative expedient. I have been obliged to prove this to draw the conclusion that we cannot yet assert complete knowledge of all cases in which a surgical operation may serve to cure a cerebral disease. Clinical experience, our best teacher on such subjects, has not yet been sufficiently consulted; it is therefore premature to restrict operation to a few cases in which it will undoubtedly succeed before knowing whether it may not prove beneficial in others. It is not only the humane desire to save a dying patient, but science also demands a more frequent use of surgery in intracranial diseases. If we neglect to profit by the occasions that offer, how shall we ever acquire a knowledge of facts, which aid to form a practical and safe rule? Yet such is the power of a name that the wealth of clinical experience increases but slowly. I assert that whenever a competent examination of the symptoms and course of a cerebral disease brings us to the necessity of a diagnosis of lethal intracranial process operation is justified even though the seat and nature of it render the result uncertain.

From certain of Bergmann's sentences one might say that he is hostile to this idea. Here are some, for example. "If the absence of inflammatory symptoms prevents a *precise indication* of the seat of a tumour we cannot even speak of an explorative trepanning."[6] "I do not think trepanning or incision of the brain is justified unless peremptorily demanded by *unmistakable* and overt symptoms"[7] "I advise operation in cerebral abscess only in so-called *typical cases*" (p. 88). "We do not treat of finding out at all costs every cerebral or cerebellar abscess; but it is of importance not to leave unoperated on those which clinical experience permits us to diagnose" (p. 90). In Jacksonian epilepsy "we should never operate except when there is a *full reason* to admit a palpable cortical lesion, and hence removable" (p. 162). I have intentionally accentuated these words of Bergmann, *precise indication, unmistakable, typical cases, full reason*, because they show that the illustrious clinician starts with the idea that it is possible to arrive at a precise and certain diagnosis. It may seem strange to some, but I hold it true that we may frequently formulate a diagnosis sufficiently precise in an intracranial lesion; but in most cases the judgment is a mere probability. This *certainty* of diagnosis, which would be invaluable to the surgeon, generally does not exist. Well-argued diagnoses, thought out with great precision, are made, and especially are published; but the merit must too often be given to good fortune in the cases, for all equally sure diagnoses sometimes prove mistaken. The origin of the symptoms in intracranial diseases is so complex that some element caused by them remains unknown to the physician, and therefore the clinical inference can never be utterly certain. Not that the correspondence of the anatomical lesion with the clinical inference is a mere accident; indeed, I affirm that in no other branch is the practical value of the physician more clearly proved. I only maintain that the certainty which seems to be an essential condition, and without which Bergmann will not consent to employ the surgeon, is but rarely attainable. When an anatomist or surgeon opens the cranium he always finds something unforeseen. Even when right as to the fundamental fact, some condition which should have been certain is wanting, and another neither suspected nor thought of is conspicuous. Bergmann has not deceived himself on this point. He says, in one part of his famous work: "I believe it right to assign a limited field to operation, reserving it only to the few cases precisely diagnosed." Yet even for these it has, in the first instance, no other importance than that of an exploration—i.e., an operation made to obtain a more direct investigation. It is only after the aperture is made that the surgeon can judge whether the tumour is within reach, and whether, when found, its size, its relation to the neighbouring parts, and its infiltration into them do not forbid removal. The surgeon should be always ready to interrupt or to abandon the operation either sooner or later. And this happened to the illustrious surgeon himself in a case in which he had occasion to admire the excellent diagnostic directions of his colleague Jastrowitz. Where, then, is the certainty? I know that the interests of surgeons demand that these cases should be eliminated from the limited number admitted by Bergmann; but how are we to recognise them? Those who pass the clinic—and they are many—by means of books on physiology and pathology may pretend to succeed; but those who study real disease and make post-mortem examinations will confess that it is still mostly impossible to distinguish certain circumstances of volume, infiltration, and vicinity. Bergmann entirely appreciates this difficulty. If our object is the good of humanity we must invert thus the sentence of the Berlin clinic: We must not treat only those few cases which are clinically pronounced to be adapted for operation, but must operate in all cases which might possibly be treated by the surgeon. Surgery loses nothing by attempting in some cases without succeeding; it would, I believe, lose more if through fear of attempting in vain we let men die when they might have had the inestimable privilege of life. The choice lies between these two systems—either operate in only a few cases or else resign ourselves to dare non-successes in some in the hope of success in the many. In the first course the surgeon is less likely to find that his work is ineffectual; but he must confess he may have renounced some signal triumphs and has missed that knowledge which repays practical experience. Following the second system he avoids these two evils. True, some mortification to the surgeon may ensue; but what does this matter in the face of a clear conscience and increased experience? You might say that ignorant people, seeing a surgeon's attempts frequently fail, might lose faith in him; but to an invalid blind faith is no longer a guide. The patient only wants to get well, and I wager that if the alternative were clearly placed before him he would refuse no reasonable chance of recovery where it is certain that without this pain, blindness, paralysis, or death must inevitably ensue. Unfortunately I am not qualified to speak to surgeons as a surgeon; but if it may be allowed to an outsider to give his advice I should say it is the interest of the surgeon to increase as far as possible the number of his cures. And if they object that this method is not scientific, I reply that one may respect knowledge when useful or even dangerous, but a science that allows people to die when they might live is neither powerful nor humane.

I have perhaps insisted too much on this moral side of the question, and this may weaken my thesis, for it may be deemed that sentiment rather than reason has inspired it. I will, then, at once begin to demonstrate more fully the assertions I have indicated, which form the basis of my theme. In the first place, we must admit that criteria for determining during life the seat and nature of an intracranial lesion are less reliable than is generally believed. The marvellous experience of Frietsch and Hitzig, the observations of Jackson, Charcot, and others, have in truth revealed an unexplored world, but

[5] Op. cit., p. 177. [6] Op. cit., p. 112. [7] Op. cit., p. 93.

the diagnostic importance of these discoveries has been greatly exaggerated. The uncertain and unknown quantities which are enveloped in the cranial covering (not to mention the psychic qualities) are such that, even when the skull is opened and the brain cut into, one or more problems remain unsolved. Proofs abound of the truth of this; yet the nature no less than the seat of these lesions remains difficult to recognise. It lies, therefore, with the unprejudiced clinical professor to moderate too enthusiastic a faith, and to give an example of modesty and fallibility. As I have to enter into a minute analysis of facts I must restrict myself to one single disease—chronic cerebral abscess. Glancing at the history of the intracranial abscess we recognise this singular fact: the treatment of this disease has made great advance of late years, while the diagnosis is still very insufficient. The medical man can treat a chronic cerebral abscess, but he does not know how to recognise it. This is the exact opposite of what happens in other maladies. Macewen[8] has had 31 cases of intracranial abscess, and has operated on 25; the 6 not operated upon all died; of the 25 operated on, only 2 succumbed, one because during the operation an abscess on the cerebellum remained occult, and the other because the operation was not performed till the patient was already on the point of death.[9] On the other hand Martius has made a deep study of seventeen cases of cerebral abscess, occurring in the German hospitals during the few past years.[10] Well, not one of these cases was revealed during life, and naturally of the seventeen cases none were operated on, and none recovered. Now, we all know that the training of German medical men is second to none, and we cannot deny that this utter absence of diagnosis is very significant. Probably, if we all wish to be as sincere as the registrars of the German military hospitals we should feel the difficulty or impossibility of recognising a chronic cerebral abscess during life is widely spread, and we should not find in certain text-books precepts which have no similarity to facts. It is true that acute cerebral abscess and traumatic purulent meningitis are generally easily diagnosed, but besides these acute cases there are many chronic or subacute ones, in which the judgment of the medical attendant is often at fault. If you reflect, the greatest argument in chronic cases is in the etiological criterion—trauma, purulent otitis, diseases of the heart or respiratory organs, caries of the skull bones, &c. But the etiological criterion, valuable where it confirms a judgment, is weak where it has to form a basis, because, as has a thousand times been demonstrated, that which we call cause is really but a part of the cause; hence we can never make an *a priori* assertion unless there coöperate with that part all the other elements without which that one would be unable to generate the supposed effect. And this is why not all cases of otitis or affections of the lungs or caries of skull bones are followed by suppuration of the cerebral meninges or by an abscess in the brain; and whereas in all these numerous cases the patient who escapes intracranial suppuration might, like anyone else, be attacked from other causes by tuberculous meningitis, cerebral tumour, or some other brain process, the conclusion drawn from knowing the cause, though it may often touch the truth, is not *de rigueur*, and is thus subject to error.

There is, I admit, the semeiological criterion, but even this is indistinct and often of slight value. Bergmann divides into three groups the symptoms of cerebral abscess: (1) symptoms of suppuration, (2) symptoms of cerebral compression, and (3) local symptoms. But if we analyse these we find little or nothing remains to prove the abscess. Inflammatory symptoms often denote that a part of the brain is excited or paralysed—and nothing more. They tell us nothing of how the nervous tissue is injured. As a general rule these symptoms are either wanting in the chronic abscess or appear at a later date; but, since they might exist, this generic knowledge of their frequency aids us little or nothing in the treatment of the patient, because it always remains to be proved why a patient with inflammatory symptoms should not be suffering from one of those abscesses which are generally accompanied by inflammation, or why a patient without such symptoms should not have rather one of those rare neoplasms, which run a semilatent course, or with only ordinary phenomena. General ideas belong to the pathologist and serve also for the clinical student, but the latter must, above all, probe to the foundation of individual phenomena and not apply to them mere general principles. Neither do the phenomena of cerebral compression belong exclusively to the abscess, but also to neoplasms, parasites, aneurysms, meningitis, and even hæmorrhage. Bergmann brings into special relief headaches and congestion of the papillæ; the one because it increases with the access of fever, and the other because it is found in very few cases. However, neither of these things will hold; any headache, however caused, will increase with fever, and a blow on the head, whether in a case of abscess or tumour, may or may not increase the pain; optic neuritis is less uncommon than has been supposed as a concomitant of abscess.

In conclusion, when the physician is enabled to establish that a given part of the brain is altered, and by a process which augments the intracranial pressure, he has no doubt pointed out two attributes of the abscess; but as these same attributes belong equally to other morbid processes he cannot logically draw a final deduction unless aided by some attributes exclusively belonging to the abscess and to no other disease. The symptoms of the third group, those of suppuration, might assist here, but unfortunately these are almost all reduced to fever. Now the beginning of a chronic abscess of the brain is often so obscure and indistinct that the fever might be unnoticed; the development of suppuration in a tissue which, like the brain, is so little disposed to suppurate is so slight and slow that the pyrogenous substances developed by it either do not raise the temperature or raise it very slightly. Besides, the capsule with which the pus in chronic abscesses is surrounded, its biological properties, and the modifications which time perpetrates in the matter enclosed within it all combine to give it an individual existence, and thus to diminish the influence exercised by it upon its surroundings.[11] So it is, at least, until some accident or new development supervenes to modify the reciprocal attitude of the abscess and the surrounding tissues. This accident will then determine those ulterior cerebral alterations which constitute the cause of the terminal symptoms of chronic abscess in the brain. If, however, we reflect that meningitis may also cause fever and that many intracranial lesions occasion meningitis the value of these symptoms is lessened even in favourable cases in which they are found. Not to be diffuse, I will be silent as to the inflammatory action which might arise on the affection of certain parts of the brain independently of the nature of the process which causes it.

(To be continued.)

[8] Pyogenic Infective Diseases of the Brain. Glasgow, 1893.

[9] We are treating of abscesses not wholly chronic or acute, but this need not alter much the result of surgical treatment; at least we have no facts to prove a difference in the efficacy of surgical cure for chronic abscess.

[10] Beitrage zur Lehre vom Hirnabszess. Berlin, 1891.

[11] Körner (Die Oertlichen Erkrankungen des Hirns; Frankfurt-am-Main, 1894, p. 93) opposes this idea. He says: "Abgekapselte Hirnabscesse wachsen vielmehr ebenso wie freie, bis sie in einen Ventrikel durchbrechen oder auf andere Art den Tod herbeiführen." This assertion is at best an over-statement of a truth. That encapsuled abscesses increase is true, but they do not, like others, increase to the end of their course. It is inexplicable why for so long they produce no functional disturbance, and why even after many months they preserve their small volume. We cannot certainly establish any absolute relation between the age of the abscess and the denseness of the pseudo-membrane, but neither can we deny that the longer an abscess lasts the more frequently it is encapsuled; but it is absolutely incontestable that during the period in which it is entirely enclosed by a pseudo-membrane the effect it causes on the cerebrum is less than when it is not so enclosed by a capsule.

An Address
ON
EVIDENCE AND THE VALUE OF FACTS.

Delivered to the Medical Society, University College, London, on the Annual Public Night, Oct. 17th, 1894,

BY J. BLAND SUTTON, F.R.C.S.,
ASSISTANT SURGEON, MIDDLESEX HOSPITAL.

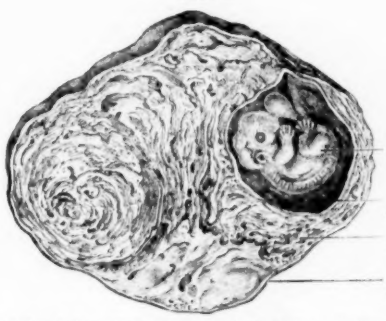
GENTLEMEN,—Some years ago I heard a distinguished judge in an after-dinner speech remark that if the theories current in the profession of medicine were tried as causes before a judge and jury, and the testimony admitted on the principles prevailing in courts-of-law, the major proportion of them would fail. Few of us who have given serious attention

to the subject can doubt the truth of that statement. It is deplorable how largely imperfect observation, loose and incomplete records, reverence for authority, professional bias, and incompetent witnesses promote error and retard truth. In this address the word "evidence" will be employed in its simple sense, signifying facts apprehended by the mind and made the ground of knowledge and belief. The term "fact" will be used to express what is certain and known by the evidence of the senses (Stephens). It is clear that facts are acquired by observation, hence it is manifest that we must carefully distinguish between what we observe and what we think we observe—not always an easy matter. It is a curious circumstance that the greater proportion of men and women prefer to believe what they think they see, especially in things apparently extraordinary, rather than exert themselves to establish the truth. For example, it seems somewhat strange that a crowd of educated persons could mistake an ostrich for a giraffe. Some years ago the passengers of an Indian steamship were greatly excited by observing on the shore of the Red Sea what they believed to be a number of giraffes. Of the reality of the observation they were convinced. It happened that a very able naturalist and surgeon on board, surprised that giraffes should have wandered so far from their usual district, watched the animals carefully and perseveringly, and at last proved clearly that the supposed giraffes were ostriches magnified by the peculiar atmospheric conditions prevalent over sandy tracts in tropical regions.

As facts are the basis of evidence it is very necessary to establish them beyond dispute. This is not always a simple matter. Remember that repeated reiteration will not turn statements into facts. Le Sage, in his admirable "Gil Blas," a book abounding in parables, tells of one Señor Carlos Alonso de la Ventoleria, who "has got a number of good stories by heart, which he has repeated and vouched for so often that at length he actually believes them to be true." I fear we all know such a señor. Many illogical deductions arise from ill-observed facts in common life as well as in what is pompously called science, and have formed the basis of many satirical fables. On the other hand, facts which happen uniformly under the same circumstances not only become useful for the foundation of laws, but enable us to check careless observation and avoid erroneous judgment. It will be useful to illustrate this. Dr. Hedley sent me from Middlesbrough an acardiac fœtus. It was headless, with rudimentary arms and ill-formed legs. The mother explained matters in this way: when some months advanced in pregnancy she visited a menagerie and saw a girl put her head into a lion's mouth. The "king of beasts" acted in an undignified manner and bit the foolish performer; this caused great consternation among the audience, and profoundly agitated this pregnant woman. To this event she attributed the disaster to her infant. In acknowledging Dr. Hedley's present I expressed the opinion that the fœtus was one of twins and the companion was a girl. This proved to be correct. The mother's belief that the deformation of her child was due to the fright at the menagerie was based on an illogical consideration of the circumstances. Many, very many, headless fœtuses (acardiacs) are born, and the mothers who conceived them have never been witnesses of a decapitation during their pregnancies. In the present case the facts are not in accord: the lion bit the girl, but did not bite her head off, yet the fœtus was headless, arms rudimentary, legs ill formed, &c. The common-sense (scientific, if you will) side of the case is much more interesting, as it illustrates that facts which happen uniformly under similar circumstances serve as foundations for laws. Prolonged and careful study of the environment of acardiacs has shown that they always occur in twin births with a conjoint placenta, and when it is possible to determine the sex of the acardiac it is always the same as that of its companion. I have assured myself of this so often that on examining the specimen I was quite certain it was one of twins, its companion a girl, and the mother's story a compound of ignorance and superstition. When, after a number of careful observations, certain facts have been found to happen uniformly under similar circumstances, a discordant fact breaks the series, it is necessary to submit it to very critical examination, especially when the previous uniform events have been made the basis of a theory, because "one single fact clearly irreconcilable with a theory involves its rejection" (Jevons). For instance, a friend, possessed of a very large amount of inquisitiveness, once showed me a calculus as large as a cricket ball which he had found in the colon of a horse. In explaining its nature I mentioned that he would probably find in the centre of the calculus a piece of metal or perhaps a button. Next day he amused himself by dividing the calculus equatorially, but was disappointed at the absence of any trace of a foreign body and had a good laugh at my expense. When his merriment was at full height one of the hemispheres fell to the ground and split in two, displaying a button. In this case my opinion was based on facts obtained from the critical examination of scores of colic calculi obtained from horses. Most of them had a fragment of metal as a nucleus; in a few the nucleus, as in this example, was a button. When an individual possessed of an average intellect makes a series of careful observations with a particular object in view he is said to have acquired experience, and one of the chief outcomes of such experience is a capability over the inexperienced in estimating probabilities. In the case of the colic calculus just considered experience enabled me to be quite sure that a foreign body would be found within it, and enabled me to state with a fair amount of probability that it might be a button.

Many can scarcely be aware of the great difficulty which is sometimes experienced in establishing a fact, especially when it may form the basis of a far-reaching principle. It happens occasionally that facts in favour of a particular theory appear extremely probable, yet fail to convince cautious minds; then by a favourable concatenation of circumstances a fact is observed which absolutely decides the question. To such the term "crucial fact" may be applied without giving it the great importance of Bacon's "experimentum crucis" or Herschell's "crucial instance." Crucial facts are often of great value, and as they are somewhat uncommon it is necessary to be patient and industrious in order to detect them. Their utility is demonstrated in the following example. It has long been known that an ovum may be fertilised and retained in the Fallopian tube. In 1889 I was able to prove that an ovum developing in the tube may, like an ovum in the uterus, be converted into what is technically known as a mole. Careful studies of typical tubal moles show that they are usually ovoid; on section they present an outer limiting membrane—the chorion, beset with villi; the greater part of the mole consists of blood-clot, but towards one pole will be found a cavity lined with delicate membrane—the amnion, which sometimes contains an embryo. (Fig. 1.) In many small

FIG. 1.

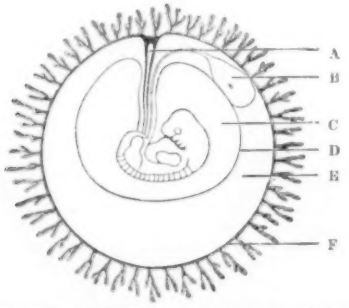


Tubal mole in section (natural size). F, Fœtus. A, Amnion. B, Clot. C, Chorion.

tubal moles the amniotic cavity is obliterated. During a period of four years the excentric position of the amniotic cavity in tubal moles puzzled me. At last I obtained and described to the Obstetrical Society of London a tubal ovum with its membranes intact. In the early ovum the disposition of the membranes is different from what pertains at a later period. Soon after the chorion is shaggy with villi the embryo will be found in its amnion. Between the amnion and chorion there exists a space (well known to embryologists), which may be called the "subchorionic space," filled with fluid. (Fig. 2.) As the embryo grows the amnion gradually encroaches on and finally obliterates this space, but for a period a potential space exists between the two membranes, resembling that between the visceral and parietal pleuræ. (Fig. 3.)

On examining tubal moles in the light of these facts it is clear that the blood occupies the subchorionic space. This at once offers a satisfactory explanation of the elliptical shape of tubal moles and also convinced me that in these circumstances the blood, in order to occupy this space, should come from within the ovum—probably from the allantoic vessels. When these views were communicated to the Obstetrical Society Dr. Horrocks suggested that, in order to make the evidence complete, it might be possible to demonstrate differences in the microscopical characters of the blood within the mole as compared with adult blood. The next fresh tubal mole which came under my notice was

FIG. 2.

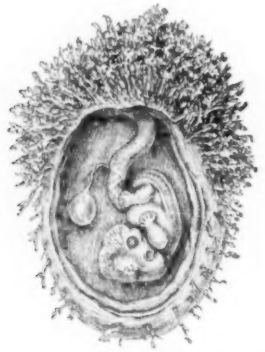


An early embryo, showing the relation of amnion and chorion. A, Allantois. B, Umbilical vesicle. C, Amniotic cavity. D, Amnion. E, Subchorionic space. F, Chorion with villi.

submitted to this critical test. The red corpuscles exhibited the nucleated character which distinguish the blood of the early embryo from the adult. This simple fact makes it clear that tubal moles are due to blood extravasated from the ovuline vessels into the subchorionic space. As the most convincing piece of evidence is the presence of nucleated red corpuscles it may be called a crucial fact.

Thus far we have mainly been dealing with facts. It will be useful now to consider the way in which they are employed as a foundation for judgment. For this purpose it is necessary not merely to apprehend but to appreciate facts,

FIG. 3.



Tubal ovum (natural size), showing the space between chorion and amnion, and the polar disposition of the villi.

a complex mental process known as reasoning. The appreciation of facts depends in a large measure upon the knowledge of the observer, for as a rule we only appreciate—and, indeed, often only perceive—those things which previous experience teaches us to expect. Individuals capable of perceiving facts previously unrecognised are termed "original observers." Many are able to detect new facts, yet fail to reason upon them correctly, but when acute powers of observation and great capacity for reasoning are combined in the same person the result is a genius. Many men have distinguished themselves as patient collectors of facts, of these John Hunter and Richard Owen are remarkable examples; but to this exceptional talent for accumulating observations add an unusual capacity for reasoning upon them—the result is a Newton, a Cuvier, or a Darwin. A combination of the faculty for accurate observation and ability to reason correctly on observed facts is essential in the successful practice of medicine and surgery, where much of the evidence on which judgments (technically called "diagnoses") are formed is of the kind familiar to lawyers as "circumstantial evidence." The best legal writers find it impossible to define circumstantial evidence, and I shall adopt their method and illustrate it by examples.

In 1874, when the remains of the intrepid David Livingstone, "brought by faithful hands over land and sea," reached England, grave doubts were expressed as to the authenticity of the mummified corpse; recognition by means of the face was impossible. It was well known that Livingstone during his last visit to London consulted Fergusson in regard to an ununited fracture of the left humerus, the result of a bite from a lion in 1843. Fergusson, in company with other surgeons, examined the left humerus and found an ununited fracture a little below the insertion of the deltoid. A critical examination of the parts revealed the peculiar changes characteristic of an old ununited fracture: "the ends of the fragments were surrounded by a capsule, an inch shortening compared with its fellow, and marked attenuation of the humerus, especially in its upper half." These facts coincided with Fergusson's previous knowledge of the case, and reasoning on the facts he writes "that a specimen of this unusual condition should arrive in London from Central Africa except in Livingstone is beyond human credulity." A cast of the bone is preserved in the museum of the Royal College of Surgeons of England.

Let me now draw your attention to a tale of painful interest illustrating evidence of the same kind. In 1892 H.M. gunboat *Partridge* was sent by the Commodore to ascertain the truth or otherwise of a statement that some men were marooned on Roncador, a small coral island (300 by 200 feet), or cay, in the Caribbean Sea. On arriving at Roncador it was found occupied by sea birds, especially boobies, in enormous number; some huts were also observed. On landing and entering the largest hut the scene depicted in Fig. 4 met the gaze of the explorers. Half sitting, half reclining on a high trestle bed, and partially supported by a makeshift crutch, was something rigid and angular within a mouldy cotton shirt and canvas trousers. Two rusty pannikins were close at hand and fragments of skeleton on the floor; these consisted of a skull, vertebræ, and some long bones. On the bed were the bones of a hand, and a number of land crabs scuttled about. The floor was covered with sea-birds' eggs, and many more were found packed and salted in wooden boxes. Some empty cruet bottles were found near the eggs and a box containing papers which showed him to be a Dutchman; he had served in the militia. The medical officer was able to determine from an examination of the skeleton that it belonged to a lad under twenty years of age. In another hut was found the body of an old negro. The story is clear enough. The well-built hut showed that the men had come prepared to stay a while. The empty boxes showed that food had been at one time abundant; then provisions ran short. The men subsisted for a time on sea-birds' eggs and water was apparently plentiful. Men cannot live long on eggs and brackish water; scurvy must occur. This is the secret of the crutch in the cabin. Disease had crippled before it killed this young man.[1] This explanation rests entirely on circumstantial evidence, but evidence so complete and convincing, the reasoning so sound, yet apparently so simple, as to make one exclaim on reading it, Surely this is the way of Zadig! When circumstantial evidence is very complete we are accustomed to deal with the judgment based on such evidence as if it were absolutely proved. Take for example fertilisation of the ovum. We all believe that the union of at least one spermatozoon with an ovum is necessary for the production of a metazoon, but so far as man is concerned the belief is based on circumstantial evidence; no man has ever witnessed the meeting of these two wonderful cells. Knowledge of the matter is entirely based on evidence furnished by observation on low animal forms. Indeed, so little direct evidence is forthcoming on this point that we are ignorant of the position in the genital canal where the meeting occurs. That it may take place as high as the Fallopian tube is proved by the frequent occurrence of tubal pregnancy, but it is very improbable that this is the usual meeting place. Some

[1] The Graphic, Oct. 15th, 1892

glimmerings of light are appearing in this dark passage, and we all feel thankful that the fable in which the fimbriæ of the tube seize and convey away the ovum, much like Mephistopheles runs away with Faust from the stage of the Lyceum Theatre, is rapidly disappearing from the minds of text-book writers.

It is always useful to remember that circumstantial evidence of apparently overwhelming completeness will sometimes lead to mistaken judgments. Dr. Radcliffe Crocker had a very intelligent dog; as it advanced in years its breathing became stertorous on exertion, especially after a vigorous scamper. Auscultation revealed a mitral murmur which was very audible after the dog ascended or descended a staircase, and at times the dyspnœa was a source of great alarm to the dog's friends. In due course the abdomen began to enlarge, dropsy was suspected, and at last euthanasia was prescribed and carried out by means of prussic acid. At the necropsy very curious conditions were found. The mediastinum contained a mass of enlarged and partially calcified lymph glands, which pressed upon the left recurrent laryngeal nerve. This explained the stridor and its increase on exertion. The mitral valve was curiously malformed, one cusp being connected with the septal wall by means of thick tendons without papillary muscles. These caused the murmur, for the valve was thoroughly competent. The increase in the size of the abdomen was produced by a large extravasation of blood beneath the capsule of the spleen; this, as ascertained subsequently, was the result of a bite from a neighbour's dog. To the mind of the physician the clinical signs in this case were characteristic of some chronic variety of heart disease. Yet at the necropsy three rare lesions were found: each occurring singly would be considered rare, therefore the more extraordinary that the three should be coincident and absolutely independent. The case of this dog illustrates very well the unexpected combinations which render uniform accuracy in diagnosis unattainable. Imperfect knowledge is a very fertile source of error. I appreciated this in 1879 when I began to investigate diseases of wild animals at the Zoological Gardens. My first great difficulty was to distinguish between structures which in one animal would be considered normal, but in another decidedly morbid. In many, very many, instances I have kept specimens, obtained from rare animals, several years in order to control the observation by examining other examples of the same species before deciding that I have had to deal with deviations from the normal condition. It would be very easy for me to detail instances in which experimenters have fallen into error on account of insufficient acquaintance with the normal anatomy of their subjects.

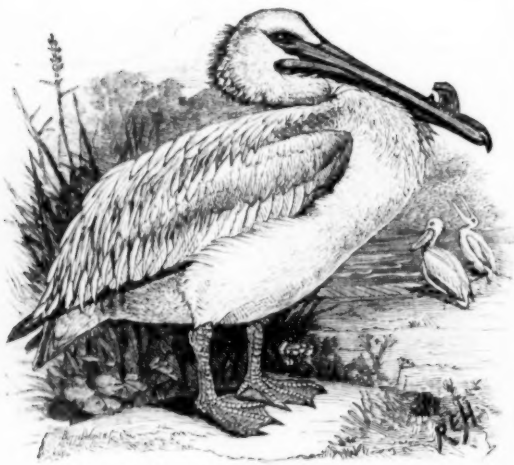
FIG. 4.

The remains of a man marooned on Roncador, in the Caribbean Sea, found by the officers of H.M. gunboat *Partridge*. From the *Graphic*, 1892. (Reproduced, with some modifications of detail, with the permission of the Editor.)

Let me finish this address by describing an example of a structure normal in one bird, but which would be considered pathological in another of the same kind. The beak of the American pelican (P. trachyrhynchus) is surmounted by a horn which is structurally identical with the wart-horn occasionally seen on men and women as well as on birds and beasts. A pathologist, on examining the beak of P. trachyrhynchus, would at once conclude that he had to deal with a wart-horn on the bird's beak, and the fact that it is shed in the autumn, when the bird moults, does not disprove the view, because pathological horns in birds are shed during moulting and rapidly reproduced with the feathers. A

close acquaintance with American pelicans shows that this horn on the beak is a constant character, and therefore normal. (Fig. 5) Another source of much unsound knowledge is the enormous number of incomplete records contained in periodical medical literature. This is particularly obvious when the records rest merely on clinical observation. Lastly, let me advise you, in cases surrounded by great doubt,

FIG. 5.



The American pelican, showing the horn on its beak.

to be careful and to reserve your judgment. What is extremely dubious to-day may be clear and certain to-morrow. In forming a judgment keep to the facts (when inference is concerned there is no certainty), and never let the reasoning outstrip the evidence.

HEART PAIN AND SENSORY DISORDERS ASSOCIATED WITH HEART FAILURE.

BY JAMES MACKENZIE, M.D. EDIN.,
HONORARY MEDICAL OFFICER, VICTORIA HOSPITAL, BURNLEY.

IT is possible to enumerate a great number of symptoms that are induced by failure of the heart. Individual cases may present a greater or less number of these symptoms, and it is rare that two cases present exactly the same features. As the evidence of heart failure may be exhibited in a disturbance of the functions of organs more or less remote from the heart itself, it is frequently difficult to appreciate the relative value of such evidence. By no organ are the symptoms so varied in site and in character as those exhibited by the nervous system; yet when a clue is obtained as to the meaning of the various manifestations, no series of symptoms point more conclusively to the seat of mischief. Heart failure to an extreme degree may be present, and no physical signs may be discovered in pursuing the usual methods of exploration, while, if the sensory phenomena be carefully studied, evidence of great value may be at once forthcoming. While the symptoms of heart failure evoked by the nervous system are not limited to the sensory nerves, it will mainly be the sensory disorders with which this paper will be concerned. The term "heart failure" will be employed in preference to heart disease, inasmuch as the symptoms are sometimes evoked in cases where there is no demonstrable cardiac lesion. The failure of heart power may be, however, the undoubted cause of their appearance, this failure and its accompanying symptoms frequently being evanescent.

Pain.—The sensory disorders vary in different individuals, and occasionally in the same individuals at different times, both in character and situation. I have not made much out of the study of pain in regard to its degree and the other characteristics occasionally employed in describing it, nor do I find its association with the sense of impending death either of universal occurrence or peculiar to affections of the heart. What I have been careful to note is its mode of onset, its site, and its radiation. In the first examination of the patient one rarely gets a satisfactory account of these points. It has been my custom to request the patient to note carefully these points in subsequent attacks. The account then given is very trustworthy, and can often be verified by the presence of other symptoms.

Hyperæsthesia.—The most important of these other symptoms is a state of exalted sensibility—a hyperæsthesia of the skin and certain subcutaneous tissues. Although the hyperæsthesia when present often occupies the area in which pain is felt, it often happens that there is no hyperæsthesia of any tissue, even when the pain has been of the most violent character. The demonstration of the areas rendered hyperæsthetic can usually be readily effected. The area of cutaneous hyperæsthesia can be determined by stroking with a pin's head, approaching the tender area from the surrounding healthy skin. Sometimes the skin is not found tender by this method of stimulation, and then it can be demonstrated by lightly pressing small folds of skin between the thumb and forefinger. When the skin is hyperæsthetic to the pin-head it is also tender to this latter method of stimulation. The areas mapped out on any individual exhibiting both are not extensive, the area revealed by lightly pinching being somewhat more extensive, but embracing the area revealed by the pin-head method. Nor can the borders be exactly delimited by either method, as the areas are variable in their sensitiveness at the margin. This variability in the areas elicited by these two methods is not peculiar to the hyperæsthesia of visceral disease, but may also be demonstrated in the hyperæsthesia occasionally present in herpes zoster. The subcutaneous fascia, glands, and muscles can be demonstrated to be hyperæsthetic by lightly pinching, first testing that the skin covering them is not hyperæsthetic.

The association of the visceral with the sensory nerves.—When the nerves supplying the areas of skin and the muscles thus demonstrated to be hyperæsthetic are considered, and their root origins determined, it will be found that their nerve centres are in close association with the nerves supplying the organ whose disease has originated the sensory phenomena. It follows, then, that if the centres of the nerves supplying the viscera were known, the organ affected could be recognised by the painful and hyperæsthetic regions in the external body wall. The only conceivable explanation for the presence of these sensory disorders is that a stimulus is conveyed by means of the nerves supplying the organ to the centres of the spinal nerves. This stimulation induces the pain, &c., which is referred to the peripheral distribution of the nerves whose origins are affected. These centres probably being in a state of exalted sensibility stimuli applied to their peripheral distributions produce a sensation of greater intensity, and which we call "hyperæsthesia." This view receives support from the fact that the stimulus transmitted from the organ at fault excites other nerve centres which produce the phenomena characteristic of their function, as an increased secretion in the case of the nerves supplying the salivary glands in Cases 1 and 15.

The nerve-supply of the heart.—The heart receives its nerve-supply (1) from its intrinsic nervous mechanism, (2) by means of the vagus, and (3) by means of the sympathetic. The first of these concerns us here only in a secondary manner. No sensory disorders are evoked by these nerves. It is highly probable that abnormal excitation of these nerves can be recognised by certain characteristic irregularities of the heart's action. In the further course of this paper these will be left out of consideration. The vagus supply at its origin is brought into relationship with certain nerves distributed to the external body wall. The most important of these is the spinal accessory nerve. In the distribution of this nerve to the sterno-mastoid and trapezius muscles a striking and an instructive field of observation is provided for the examination into areas reflexly rendered hyperæsthetic. From this nerve the sensory disturbance may extend to the nerves, associated with the spinal accessory in its supply to these muscles—viz., the second and third cervical,—and may thence extend to their cutaneous distribution in the head and neck. The sympathetic supply of the heart is associated with the spinal nerves from the lower cervical and upper dorsal regions of the cord. It is in the region of distribution of the spinal nerves from the seventh cervical to the fifth dorsal that the sensory abnormalities associated with heart failure are most frequently and most characteristically distributed. As the area involved in this distribution includes

the arm and hand, there is provided a field of observation so peculiar that many inferences can with safety be drawn from the results obtained which would otherwise be impossible if the areas were limited to the trunk.

Cutaneous distribution of the cervical and upper dorsal nerves.—In order more fully to appreciate the significance of the hyperæsthetic fields in heart failure it will be advisable to bear in mind the distribution to the skin of the nerves implicated. The cervical nerves from the second to the fourth supply the skin of the back of the head, the neck, and shoulders. They also descend on the front of the chest at least as low as the third rib, where they overlap with the second dorsal supply (Fig. 7). The fifth and sixth cervical nerves are distributed in the arm in an area roughly described as the outer half of the upper arm, the radial half of the forearm, and part of the thumb (Fig. 8). The seventh cervical is distributed to the hand and fingers, the eighth also to the ring and little fingers, to the ulnar borders of the hand, and with the first dorsal supplying the ulnar half of the forearm. The second and third dorsal are distributed on the inner half of the upper arm, axilla, and chest, meeting and overlapping the fourth cervical, as already stated. (Fig. 1.) The fourth and fifth dorsal are distributed to the chest, the latter descending as low as the upper part of the epigastrium. It must be borne in mind that each spinal nerve practically divides into three parts after the junction of the posterior and anterior nerve roots—viz., a posterior, a lateral, and a ventral. It is the lateral and ventral divisions that are involved in the supply to the arm, the posterior divisions being distributed to the skin of the back. Thus, then, with the exception of these posterior divisions, the nerves from the fourth cervical to the second dorsal are distributed to the arms. The second dorsal nerve (occasionally also the first) does send branches to the front of the chest. There is thus an interesting test provided in considering the distribution of any sensory abnormality—pain or hyperæsthesia—that arises in the chest. If it affects a series of nerve centres in succession it will not pass up the chest and over the clavicle, but will descend on the inner aspect of the arm to the ulnar border of the hand (Figs. 1, 2, and 5). In like manner pain &c. arising in the neck, and produced by stimulation of a descending series of cervical nerve roots, will proceed down the chest for only a short distance, and then be deflected down the outer portion of the upper arm to the radial border of the hand (Fig. 6). In the following study of a series of cases it will be found that this view is exactly carried out.

Herpes zoster and sensory disorders.—Several years ago, while studying these sensory phenomena, I was struck by the resemblance of the situation occupied by the eruption in herpes zoster to the situation of the pain and hyperæsthesia in certain cases of visceral disease. As a rule the eruption in herpes zoster has hitherto been described only in relation to the peripheral nerves; but, inasmuch as these nerves are usually composed of fibres from more than one nerve root, no very satisfactory information has resulted. Recognising the fact that herpes zoster is usually due to an affection of the root of the nerve (probably the ganglion on the posterior root), the areas in which the eruption &c. occur become intelligible and instructive. Frequently there is evidence that more roots than one are affected, but these are generally neighbouring roots. It is difficult to say when one nerve root only is affected. There are other symptoms present besides the herpes zoster that help to complete the picture and to indicate the direction in which neighbouring nerve roots are distributed to the skin. The most important of these other symptoms are pain and hyperæsthesia, and when the eruption is scanty or absent it is difficult to decide whether these phenomena are not due to some visceral disease; indeed, this resemblance is so great as to lend countenance to the view of the possibility of visceral disease causing herpes, and I have collected a few cases which seem to be corroborative. At present I shall merely offer for comparison the similarity of the areas affected. Dr. Head has independently pursued the same line of inquiry with excellent results.

To elucidate the various points involved in the study of the sensory disorders associated with failure of the heart I shall give a brief record of a few of the cases in which I have observed these phenomena. I have collected records of a very large number of cases and several of those here given are quite exceptional, but as they fill up gaps and enable me to complete the picture they are invaluable. For the sake of brevity, only the points that are material to the subject in hand are included in the records of the cases here given. In most of them I have full, and even voluminous, notes of the condition of the patient at different times. In some respects an apology is necessary for the incompleteness of the post-mortem examinations. As the cases were with one exception those of private patients considerable difficulty was usually experienced in getting permission to have a necropsy. When one was held it was usually conducted under great difficulties. Three of the cases given here have been published in full elsewhere, and I recapitulate them because of their great importance and because of the rarity of post-mortem demonstration as to the nature of the heart lesion.

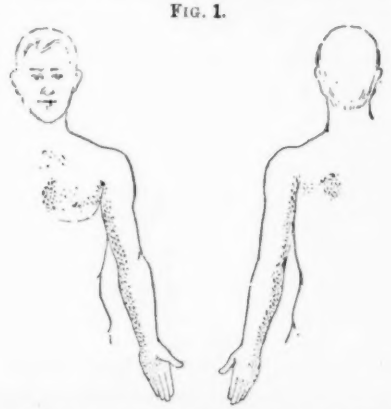
CASES ILLUSTRATIVE OF THE AREAS MOST COMMONLY AFFECTED.

CASE 1.—A man aged fifty-eight years, of gouty diathesis, complained of pain induced often by the slightest exertion, which arose in the left breast, passed up to the armpit, and extended down the inner surface of the left arm to the little finger. During an attack an abundant flow of saliva took place into the left side of the mouth. Careful and repeated physical examination revealed no cardiac abnormality. The left chest in front (skin and subcutaneous tissue), from the middle line to the nipple line, was at times very tender to the slightest pressure. There was excessive tenderness on pressure over the second left rib in the nipple line and over the second dorsal vertebra. The patient died suddenly, and, on post-mortem examination, the heart was found to have ruptured, the pericardial sac being full of blood. There was a small aneurysm the size of a marble in the wall of the left ventricle, where the ventricular cavity was separated from the pericardial sac by a thin wall consisting only of pericardium and endocardium. In this thin wall there was a narrow slit. The coronary artery was very atheromatous. The external anterior thoracic nerve was found to be lying under the place, over the second rib, that had been so tender to pressure during life.

CASE 2.—A man aged fifty-nine years complained of pain and shortness of breath on walking a short distance. The pain arose in the centre of the chest and extended out to the left and down the inner surface of the left arm. There was tenderness to pressure from the second to the fourth ribs on the left side in the nipple line. There was a slight increase in the area of heart dulness; otherwise there was no cardiac abnormality. The patient died with loss of speech, slight paralysis of the right cheek and right side of the tongue, and Cheyne-Stokes respiration. At the post-mortem examination the heart muscle was found to be soft and flabby, and on microscopic examination showed well-marked fatty degeneration. There were slight atheroma of the aorta and slight thickening of the cusps of the mitral valve. As in the previous case, the internal anterior thoracic nerve was found to be lying over the ribs where there had been tenderness to pressure during life.

During the lives of these two patients I made repeated observations of the sensory phenomena above alluded to and I recapitulate them here as they demonstrate the symptom present in a very large number of patients. I could, indeed, recite other cases where the hyperæsthesia was more striking; but I have not been able to obtain such convincing proof of the lesion of the heart as in these two cases. The pain here occupied without doubt the region of distribution of the spinal nerves, from the fourth dorsal to the seventh or eighth cervical. The area of pain was practically that of the pain and hyperæsthesia as mapped out in Fig. 5, and corresponds with wonderful accuracy to the distribution of the eruption I observed in a case of herpes zoster, and which is represented in Fig. 1. In another case of herpes zoster, in which there was only a scanty eruption on the chest in front, the

FIG. 1.



Distribution of the eruption in a case of herpes zoster, agreeing with the area in which pain was felt in Cases 1 and 2, and with the area of hyperæsthesia in Case 14 (Fig. 5).

pain was wont to radiate with agonising severity down the inner surface of the left arm and the ulnar border of the forearm to the little and ring fingers.

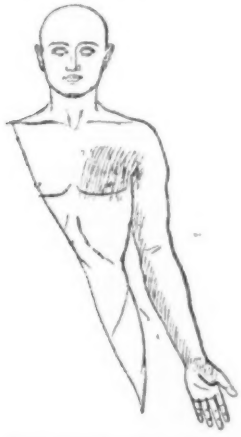
Radiation of pain from the hand to the chest.—In the great majority of cases the pain arises in the chest and radiates into the arm. In rare cases the pain may start in the arm and radiate to the chest. This had been noted by Walsh when he supposed that "the brachial pain played the part of an aura"; but as we now know the relationship of the nervous supply to the parts affected a more reasonable and fitting explanation is supplied.

CASE 3.—A man aged sixty-six years was first seen by me in September, 1893, with Dr. Dickey of Colne, suffering from asthma, an enlarged irregular heart, and albuminuria. I saw the patient again on March 9th, 1894. He had had on that day two uræmic convulsions. His left forearm was wrapped up in flannel because of the severe attacks of pain which kept recurring at intervals. The pain commenced in the arm and radiated to the chest. The pulse was firm and hard, 104 per minute; the respiration was laboured (28). The heart was enlarged to the left, and there was a well-marked triple heart sound. There was a large quantity of albumen in the urine. The patient was asked to note particulars in regard to the pain. I saw him again on the following day. He had had several attacks of pain, which began in the left little finger and extended with great severity up the ulnar border of the forearm and the inner surface of the arm to the front of the chest. He had now developed well-marked Cheyne-Stokes respiration, and the pulse had become very irregular. The patient died two days later.

Irregularity in distribution of the nerves and of the pain.—In the foregoing cases the pain has faithfully followed the course of the distribution of the spinal nerves. There is no doubt that certain variations occur in the distributions of the nerves in different individuals, and cases arise that do not conform to the usual description. In the somewhat schematic description of the distribution given above the order of distribution of the nerves below the fourth cervical was down the outer surface of the arm to the thumb and fingers, and up the inner surface of the arm. In the following case the course pursued by the pain was not altogether in accord with this description.

CASE 4.—A man aged fifty-two years had been under observation at frequent intervals for four years. His chief and almost only complaint during that time had been of a pain induced by exertion. At times the pain had been so easily excited that he had had to keep quiet in bed for several days, and then he would be comparatively free for some time. He was a pale, thin man, whose countenance had the drawn lines expressive of great suffering. I had many times made a careful physical examination of his heart, but could detect no abnormality except the presence of a venous pulse of the auricular type and on two occasions a single intermission in the pulse beat. The pain was described invariably as arising in the left chest and extending to the armpit, down the inside of the arm and the ulnar border of the forearm to the wrist, whence it extended across the palm to the thumb, leaving the fingers unaffected, but causing great aching in the thumb.

FIG. 2.



The shaded area represents the situation of pain in Case 4.

On Feb. 8th, 1894, he again consulted me, complaining, in addition to the constant recurrence of the foregoing pain, of a soreness and tenderness of the scalp. The nature and extent of this I could not well determine. In the month of March this soreness of the scalp had developed into severe attacks of headache, readily induced by exertion, but also coming on when quite still. This headache started always at the left eyebrow, and might remain fixed there, but usually spread to the back of the head, including both sides. There was no sensory abnormality of the skin, but there was tenderness on pressure over the supra-orbital nerve. This headache became so violent that the patient had to keep to his bed, and finally he became comatose, developed Cheyne-Stokes respiration, and died on March 27th. Permission was obtained to examine the heart only at the post-mortem examination. The heart was very flabby, and the walls of both ventricles were soft and friable. There was well-marked atheroma of the coronary arteries. In many places the arteries and their branches were calcified. Microscopic examination of the cardiac muscle (left ventricle) revealed fatty degeneration

Although there were no other sensory phenomena in the chest and arm except the pain it was so well and repeatedly defined by the patient that there was no difficulty in tracing out its course. Fig. 2 is the sketch I made during one of the many examinations, and its accuracy was corroborated by the patient, who was an educated and intelligent man. I was very much puzzled at this distribution and made on that account the more sure of the facts of the case. Six weeks after his death my friend Dr. Harwood showed me a case of herpes zoster under his care in whom the eruption on the arm exactly corresponded to the distribution of the

FIG. 3.

Distribution of the eruption in a case of herpes zoster, where the eruption corresponded to the pain described in Case 4.

pain in Case 4. Fig. 3 is from a photograph of the patient with the herpes zoster taken by Dr. Harwood.

In the foregoing cases the pain has appeared in an area supplied by nerves from the fourth or fifth dorsal to the seventh cervical nerves. The pain may, however, be limited to an area supplied by a portion of one or at most two of these nerves.

CASE 5.—A man aged thirty-eight years complained of a pain which on the day previous to examination seized him for the first time with excessive violence. The patient indicated the site of pain as across the left chest, under the nipple. A careful examination only revealed a slight enlargement of the heart dulness and a slightly increased area of dulness between the second costal cartilages. While out walking on the day following this examination the patient was again seized with the same pain and died in two hours from the beginning of the attack. On post-mortem examination there were found to be slight enlargement of the heart and a suspicion of dilatation of the first part of the aorta, no other lesion being discernible.

CASE 6.—A woman aged sixty years complained of pain of agonising severity limited to the ulnar border of the left forearm. The pain was induced by exertion. The left side of the chest was tender to pressure, and pressure over the second left rib in the nipple line and over the second dorsal vertebra was very painful. The pulse was full, soft, quick, and regular; the arteries were atheromatous, and there was a slight enlargement of the heart's dulness. The second aortic sound was markedly accentuated. The patient died with symptoms of heart failure, dyspnœa, dropsy, &c. At the post-mortem examination there were found marked atheroma and calcification of the coronary arteries, extensive chronic fibrous myocarditis, and no signs of fatty degeneration.

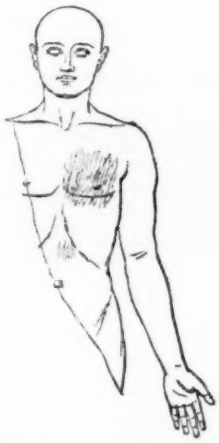
CASE 7.—A woman aged fifty-two years complained of pain that came on with terrible severity across the upper part of the epigastrium and round under the left breast. While the pain was present perspiration poured from her. These pains had begun a year previously, and at first were not very severe. Three weeks ago they had returned with great severity. They always came on either during or immediately after bodily exertion. The pain lasted from ten minutes to one hour. She was very short of breath and suffered from a severe spasmodic cough. The patient was big, fat, and florid. The feet and legs were swollen. It was impossible to define the limits of the heart's dulness because of her obesity. The second sound was markedly accentuated at the base; otherwise the heart sounds were normal. There was tenderness on pressure over both second ribs in the nipple line. The upper

part of the left sterno-mastoid was tender on pressure, as also a point immediately above the middle of the left scapular spine. There was no albumen in the urine. The patient was requested to inhale a few drops of nitrite of amyl during an attack, and after a time reported that it immediately and invariably relieved her.

In Case 6 the pain was doubtless limited to the highest nerve centre, whose fibres are associated with the sympathetic supply of the heart; while in Case 7 the pain affected the lowest nerve centre, probably the fifth dorsal. In such cases as Case 7 it is somewhat difficult to be absolutely sure that the pain is cardiac in origin and not stomachic. If all the circumstances of the case be taken into consideration—the pain induced by exertion, its association with sensory abnormalities in regions characteristic of heart failure, dropsy, shortness of breath, &c.—I think there is little doubt of the accuracy of the diagnosis. It does happen, however, that one sometimes has great difficulty in differentiating between the two forms of pain, and that this complication is likely to arise will be realised when it is borne in mind that dyspepsia is often induced by failing circulation, as in the following case.

CASE 8.—A woman aged fifty-four years suffered from attacks of pain in the left chest and abdomen. She had had rheumatic fever twenty-eight years previously and had had numerous attacks since. She had had five children. The heart was enlarged, the apex beat being in the sixth interspace one and a half inches beyond the nipple line. There was a rough, loud, systolic murmur at the apex propagated into the axilla, and a murmur, also systolic in time, was heard at the base and mid-sternum, but of a softer character. There was no cutaneous hyperæsthesia elicited by stroking with a pinhead, but when the skin was lightly pinched there was distinct tenderness in the front of the left chest (Fig. 4), and the deeper tissues were tender over a somewhat larger area, while pressure over the second, third, and fourth ribs was particularly painful. At times the patient could scarcely move across the floor without inducing a violent attack of palpitation and severe pain. The pain was usually situated about the level of the second and

FIG. 4.



The shaded area on the chest represents the field of hyperæsthesia from heart failure, that on the abdomen the area of hyperæsthesia due to dyspepsia. (Case 8.)

third ribs. It began in the middle line and radiated across the chest, almost reaching the axilla. Occasionally the pain was lower down, arising in the upper part of the epigastrium and radiating round under the left breast. The chest felt as if held in a vice when this pain came on, and she felt as if she was about to die. She suffered much from indigestion and had often severe pain after taking food, which was relieved by eructation of gas. The pain then was lower in the epigastrium, in the region of a tender spot, which she pointed out, and which I found to be distinctly hyperæsthetic, as in Fig. 4.

Pain limited to the right side.—**In these cases, so far, the pain and sensory phenomena have been mainly located on the left side. Although extension of the pain to the right side is by no means infrequent, yet its limitation to the right side alone is in my experience very rare. The following is the best example of such limitation.**

CASE 9.—The patient was a man aged twenty-four years. I had attended him four years ago for rheumatic fever, in which there was developed endocarditis, leaving him with a damaged mitral valve. He kept fairly well until the autumn of 1893, when he began to get short of breath and suffered from hæmoptysis. He recovered from this attack, and on Feb. 26th, 1894, I saw him again. He was in bed, and suffered from great pain situated over the lower part of the right scapula and the inner surface of the right elbow-joint. There were an irregular pulse, great enlargement of the heart's dulness, a presystolic murmur, pulsation of the veins of the ventricular type, and œdema of the lungs. During the night he expectorated a large quantity of blood, and obtained relief from the pain. He died on March 4th, and on post-mortem examination I found the tricuspid orifice to be widely dilated, the mitral orifice narrowed and its margins hard and calcareous, and the bases of the lungs deeply congested, being in some parts solid. The location of the pain in this case is peculiar, but will be exemplified to some extent in Cases 10 and 11.

Bilateral distribution of pain &c.—**The manner in which the pain and other symptoms have spread in the foregoing cases is not at first quite clear. It is unusual that the whole distribution of any given nerve is affected. More commonly neighbouring areas of a portion only of the distribution of a number of nerves are affected. Thus in most of these cases the anterior branches have manifested the sensory abnormalities, while there has been little or no affection of the posterior branches. Symptoms may, however, also spread to the opposite side of the body, but in such cases there is a tendency for the symptoms to be manifested in corresponding areas. The pain itself is not so severe, and areas occupied by the pain and hyperæsthesia are not so extensive on the right side as on the left. This tendency to bilateral distribution of the sensory phenomena in visceral disease finds its counterpart in the tendency to bilateral distribution of the eruption in multiple herpes zoster. In the course of a pretty extensive inquiry into the distribution of the eruption in herpes zoster I was struck by the fact that when the eruption was multiple in the majority of cases there was a distinct tendency to a bilateral distribution of the eruption, one side being usually more affected than the other. This observation has been verified in a number of cases that have come under my own observation, and in one case where a scanty eruption occurred on the face, chest, and thighs the eruption was exactly symmetrical. The following case of the occurrence of pain of heart origin illustrates this tendency to the bilateral distribution of the pain.**

CASE 10.—The patient was a man aged fifty years. Ten years previously I had attended him for an attack of fainting. For seven or eight years he had had gouty contractions of the right ring and little fingers and tophi in his ears. Two years ago, while in church, he was seized with severe pain on the inner side of the left forearm, near the elbow. While the pain lasted perspiration poured off him. He consulted me on the following day, but I could detect no cardiac or other abnormality. Some months later I observed a transient irregularity in the pulse during a slight feverish cold from which he was suffering. After this he appeared to be quite well and was able to take active exercise without discomfort. On March 11th, 1894, he was again seized with the pain and noted its exact site. It was situated in exactly identical places on the inner side of both forearms, near the elbow. The pain held him for nearly an hour. Next day he consulted me, and I found that the heart was extremely irregular in its action. The patient also, from being a bright, lively man, had become haggard and careworn, and oppressed with an indefinite sense of discomfort. He remained in this state for ten days, when his pulse again became quite regular and the sense of oppression left him. Since that time he has continued in good health.

CASE 11.—A woman aged fifty-seven years had been under my care eight months previously suffering from heart failure with shortness of breath and palpitation. She improved under treatment, but while I was writing this paper she again consulted me for a violent pain that seized her on the inner surface of the left arm and extended behind over the left shoulder-blade and right shoulder-blade, extending sometimes round over the right breast. The pain came on with exertion. The pulse was full, quick, and regular, and the arteries were atheromatous. The apex beat was in the fifth interspace, two inches outside the nipple line. There was a short tricuspid systolic murmur. The upper four dorsal vertebræ were tender on pressure, and there was a spot tender on pressure above the left scapular spine. After the examination and while dressing, the patient being somewhat excited, the pain struck with extreme severity over the lower part of the right scapula. There was no hyperæsthesia. The pulse was quickened and the face flushed, and she was bathed in perspiration. She lay down and inhaled a few drops of nitrite of amyl, and experienced complete relief in a few minutes. The pain in this attack did not radiate, and she stated that sometimes it was limited to one part. She never experienced such rapid relief in any other attack.

It will be observed that the pain in the attack I observed in Case 11, and the situation of the pain in the right arm in Case 10, are the places where the pain was felt in Case 9. The area in the right arm was also the seat of pain in Case 14, which was found to be hyperæsthetic. The association of these corresponding areas on the two sides of the body is exemplified in a case of herpes zoster I had under observation. A lad fell on his head from a cart and felt stunned for some minutes after. A few days later a herpetic eruption occurred on the back of his neck, affecting both sides almost to the same extent. On the back of each elbow there was also a crop of vesicles identical in situation. This distribution of the phenomena on both sides of the body will be further exemplified in some of the following cases.

Symptoms in the head and neck.—**So far the symptoms that have been referred to are those in association with the sympathetic nerve-supply. In carefully examining the patients I became aware of distinct sensory abnormalities in**

other fields. The most conspicuous of these was tenderness on lightly pinching the sterno mastoid and trapezius muscles. That the muscles themselves are tender admits of no doubt. The skin and subcutaneous tissues may be pinched without evincing any abnormal tenderness, but, when the muscle substance is pinched, tenderness, sometimes exquisite, is evoked. Finding the sterno-mastoid and the trapezius so frequently tender, and having regard to the nerve-supply, the spinal accessory, with its known association at its origin with the vagus, led me to consider that the transmission of the irritation to the spinal accessory was from the heart by the vagus. While the abnormal sensitiveness of the sterno-mastoid muscle and of the trapezius are the most constant phenomena, there are frequently sensory disorders in other places. Thus pain may be felt in the neck, in the scalp, and in the jaw. Hyperæsthesia may also be present in these areas. The significance of these areas as demonstrating the connexion of the nerves so affected at their centres with the vagus affords an interesting study; but as the anatomical relationship is as yet far from clear the discussion would be somewhat speculative and would be rather extraneous to the conception of this paper, which is intended to be a clinical exposition of the sensory phenomena in heart failure rather than an inquiry into how these occur. As a rule, the sensory phenomena occurring in the head and neck are associated with those occurring in the upper dorsal and lower cervical nerves. As a matter of routine, in many cases it is my custom to press over the second left rib in the nipple line, over the upper dorsal vertebræ, pinch the left sterno-mastoid muscle, and press upon the trapezius immediately above the spine of the scapula. If sensory phenomena are present they are usually manifested in one of, if not in all, these areas. In some cases all are extraordinarily sensitive, and, excepting some obscure pains, no other sensory disorder may be present. The following case had only slight evidences of sensory disturbance, limited to the two muscles.

CASE 12.—A man aged thirty-two years complained of shortness of breath and swelling of the legs. There was marked double pulsation in the veins of the neck, the heart was much enlarged, and there was present a loud diastolic aortic murmur. There was tenderness on pressing the left sterno-mastoid and the trapezius muscles, the latter not being quite so sensitive. After a few days in bed this tenderness quite disappeared. The patient appeared to be progressing favourably when he suddenly died. At the post-mortem examination the aortic valves were found to be thick and shrunken, with a long vegetation attached to one cusp. The mitral and tricuspid orifices were greatly dilated.

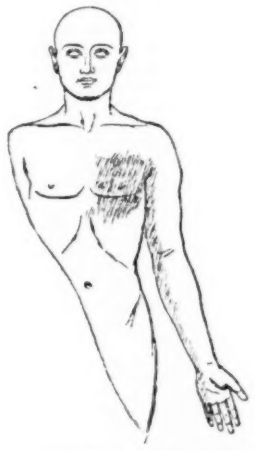
The symptoms present in the head and neck are often associated with those affecting the chest and arms. The symptoms are generally more conspicuous in one or other region, but the severity varies in different individuals and even in the same individuals at different times.

CASE 13.—A man aged sixty-two years complained of great pain striking into his chest and behind his ears when walking. Thus in going to his work he was wont to allow seven or eight minutes to walk to the station, but now it took him over half an hour, as he had to stop on account of the pain every fifty yards. After accurately noting the pain he described it as arising in the left breast, extending across to the right breast, seizing him in the neck, and extending up behind the ears, where it held him with great severity. In showing me the situation he laid the fingers of both hands over the insertion of the sterno-mastoid into the mastoid process. On one occasion the pain extended from the breasts to the armpits and down the inside of each arm to the elbow. The pulse was full and regular and the arteries were tortuous and atheromatous. The lungs were emphysematous and covered the heart. There was tenderness on pressure over the second left rib in the nipple line and over the left sterno-mastoid and trapezius muscles. The right sterno-mastoid was also slightly tender at the upper part.

The manner in which these symptoms first appear in individual cases and the way in which they spread afford a highly instructive view of the various regions allied with the heart in its nerve-supply and give a clue to the unravelling of many obscure phenomena. The next two cases have been under my close observation for several years. As Case 14 presented features of extreme interest apart from the sensory phenomena, I have spent much time in the study of the condition of the patient. In this manner I became acquainted with the first appearance of the sensory phenomena associated with the heart failure in her case, and have watched them gradually develop into the condition in which they are at present.

CASE 14.—A woman aged thirty years had been under almost constant observation for three years, as she presented features of extreme interest. There was distinct evidence of stenosis of the mitral and tricuspid valves, and there was present marked pulsation in the veins and in the liver. I have elsewhere described these phenomena at length. Eighteen months ago she came to me complaining of a disagreeable smarting pain in the left axilla. I examined her, and found the skin in the axilla and adjacent parts of the thorax to be extremely hyperæsthetic. A few days later she began to suffer from slight attacks of pain in the left breast and down the inside of the left arm; and then, on examination, I found that the hyperæsthesia had extended and occupied an area similar to that shaded on the left side of Fig. 5. These attacks of pain became so severe on the slightest exertion that she was forced to lay up. Since that time she has at different periods suffered from severe attacks of pain, and I have occasionally found, when she was very ill, the hyperæsthesia embrace nearly the whole of the left chest and inside of the left arm, and also a portion of the front of the right chest. The left sterno-mastoid and trapezius also became very sensitive. Latterly she has been better, and when I last examined her on May 25th, 1894, she complained of a disagreeable pain located on the inner side of the right forearm. I examined the place and found it to be extremely hyperæsthetic. There was also present the hyperæsthesia as represented in Fig. 5, which was mapped out on this visit.

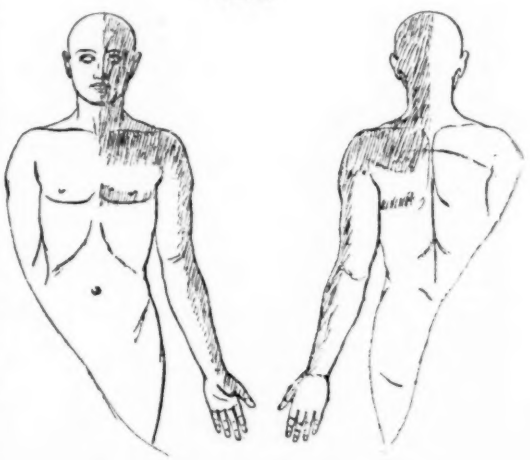
FIG. 5.



The shaded area on the left chest and arm represents the area of cutaneous hyperæsthesia in Case 14.

CASE 15.—A woman aged seventy years had been under my care for over ten years. Seven years previously she had had a long illness of great obscurity, characterised by excessive prostration, with pain under the left breast. Two years ago she consulted me for a pain of much severity that struck her across the chest on the slightest exertion. A note taken at that time described the face as being pale and distressed looking. The pulse was full, soft, and regular. The heart was enlarged to the left, and there was a systolic murmur at the base and over the carotid. When the pain came on it struck her under the left breast and between the shoulder-blades. There was an area of hyperæsthesia of the skin over the left chest from the third to the sixth ribs and from the left

FIG. 6.



The shaded areas represent the distribution of cutaneous hyperæsthesia in Case 15. The subcutaneous tissues of the whole of the left side were also abnormally tender.

border of the sternum to the anterior axillary line. There was great tenderness on pressing over both second ribs in the nipple line, over the third, fourth, and fifth dorsal vertebræ, and on pinching the left sterno-mastoid and trapezius muscles. After a long period of rest in

bed she improved. A year ago, in addition to these symptoms, there was a large patch of cutaneous hyperæsthesia on the left side of the neck, and when I last examined her (May 27th, 1894) this had extended, affecting the whole left side of the face and neck and the arm in the characteristic manner depicted in Fig. 6, while the subcutaneous tissues of the whole of the left half of the body were abnormally tender. There was also a band of cutaneous hyperæsthesia round the left chest.

The area here hyperæsthetic may be instructively compared with the distribution of the eruption in the two cases of herpes zoster represented in Figs. 7 and 8.

FIG. 7.

Distribution of the eruption in a case of herpes zoster, affecting, probably, the third and fourth cervical nerves.

The distribution of the hyperæsthesia down the inside of the arm in visceral disease is very common, but its distribution down the outer side, as in Case 15, is in my experience very rare. That this region may exhibit sensory disorders would seem to be possible from the study of the following case.

CASE 16.—A woman aged forty-five years had been under my care at intervals for the last ten years. She suffered from great enlargement and very irregular action of the heart. Seven years ago she was laid

FIG. 8.

Distribution of the eruption in a case of herpes zoster, affecting, probably, the fifth and sixth cervical nerves.

up for a long time with extensive dropsy. For the last few years she had suffered at intervals from great shortness of breath on the slightest exertion. On March 29th, 1894, she complained of a pain of great severity that struck into the right shoulder. I asked her to note carefully its exact site and character, and four days later she told me it always came on with exertion or immediately after, that it began in the middle of the side of the right neck, and extended down over the shoulder and down the outer surface of the arm to the elbow. Once or twice she had felt a slight pain at the same time under the left breast, and, rarely, a sense of pressure just below the left shoulder blade. She feels very helpless when the pain comes on. There is no hyperæsthesia, but she says that after an attack of pain the side of the right neck is very tender to pressure. She is extremely weak and short of breath, and the feet and legs are swollen.

Attacks of depression without pain.—**A frequent accompaniment of the pain is the sense of depression, which is sometimes so great as to give the patient the feeling of impending death. In individual cases the attacks of pain may occur without these sensations, while at other times it is a very distressing feature. Vague sensations of great discomfort are often present, associated with attacks of palpitation and transient irregularities of the pulse. Very rarely there may be met with cases that present typical attacks of intense depression with no symptoms of pain**

CASE 17.—The patient, a thin, spare man, aged forty-eight years, with a faint flush on his cheeks, complained of great weakness and shortness of breath. Since childhood he had suffered much from cold hands—some of the fingers occasionally going quite white and cold. When walking he is suddenly seized with attacks of great weakness, so that he has to clutch for support or he would fall to the ground. A sensation of sinking is then felt at the pit of the stomach, and a sense of depression comes on, which he describes as something fearful, and he feels as if he would die. The first attack occurred when he was twenty-three years of age after a very long period of excessive exertion. He did not have another attack for twelve years. Latterly he had been having as many as four in one week. The pulse is quick, regular, and very small. There is never any pain and there is no hyperæsthesia. The heart is slightly enlarged, and there is a marked diastolic murmur heard over the lower half of the sternum.

The spreading of the pain and hyperæsthesia.—**There are a considerable number of other points which I would have liked to have illustrated, but space forbids more than a brief reference to them. Thus when a supposed stimulus reaches the nerve centres it may affect different portions, and then the symptoms may be exhibited in the distribution of the anterior, lateral, and posterior divisions of the nerve, or may spread to the corresponding areas of neighbouring nerves, or even to the corresponding areas on the opposite side of the body. On the other hand, it may affect the whole of one side of the body. According to a recent writer, hyperæsthesia of one half of the body is a rare thing. Were these sensory disturbances more thoroughly studied it would be found to be far from infrequent. It will be observed from the selection of cases that the cutaneous hyperæsthesia is more readily developed in females than in males. The occurrence of hyperæsthesia with visceral disease in hysterical subjects is very confusing, and I had intended to have given some illustrative cases, but as these fully confirm the description given by Dr. Head it is scarcely necessary.**

Vaso-motor and pilo motor reflexes.—**So far the symptoms on which this method of studying is based are purely subjective. There are, however, some symptoms that we can study independently of the patient. If a pinhead be drawn firmly down over the skin of the trunk of a person whose body is warm a series of changes will result in the skin. Thus the temporary pallor will give rise to a blush extending half an inch on either side of the scratch. In a few seconds this will disappear, and the line of the scratch will become raised. If the pinhead has traversed a hyperæsthetic area these phenomena will be witnessed above and below the hyperæsthetic area, but over the hyperæsthetic area they will frequently not be produced. A localised goose skin often follows in the track of the scratch, but sometimes it may spread and occupy the whole of the hyperæsthetic area. These phenomena do not appear in every case, though I have been able frequently to demonstrate them; but my results, although very interesting and instructive, do not justify me as yet to do more than call attention to them as corroborative of the purely sensory symptoms.**

Differential diagnosis.—**One of the things that influences me in thus emphasising the sensory phenomena exhibited in heart failure is that the symptoms so produced may be exhibited with affections of other organs, and the dependence of the disease of these organs on the heart failure may be obscured or lost sight of. Thus many cases of chronic bronchitis are undoubtedly due to heart failure; but unless a valvular murmur or some irregularity is present little regard is paid to it. Now, if these sensory symptoms be studied, very frequently they will be so striking as to leave little doubt as to the primary source of the mischief. But it may be asked, Do not other diseases give rise to sensory phenomena that are supposed to be characteristic of heart failure? I think not. I have made careful examination of typical cases of asthma, bronchitis from tuberculous causes, phthisis, pleurisy, &c., but have not found any difficulty in differentiating them. In phthisis, for instance, the whole chest may become hyperæsthetic, but I have never found it pick out the areas peculiar to the heart. Rarely at menstrual periods the breasts become tender, but then it is both breasts that are affected. On the other hand, respiratory affections induced by heart failure, where the heart ailment was demonstrable by murmur, increased size, and irregularity, have presented sensory phenomena identical with those cases**

where the respiratory affections have been induced by heart failure, but where the sensory phenomena were the only reliable guides to the heart affection.

Burnley, Lancs.

A CASE OF ABDOMINAL ANEURYSM TREATED BY LAPAROTOMY AND THE INTRODUCTION OF WIRE INTO THE SAC; DEATH.

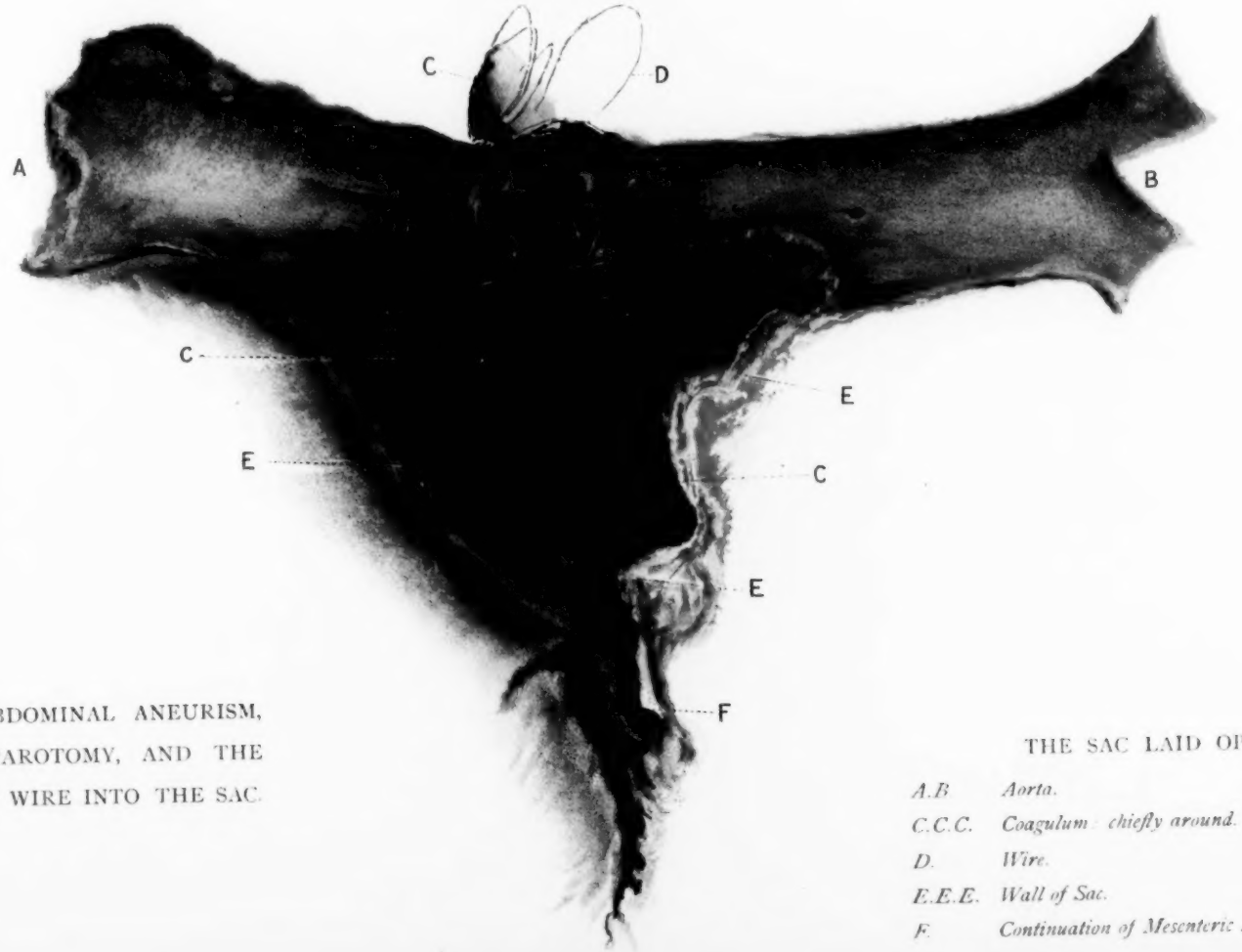
[WITH COLOURED ILLUSTRATION.]

BY W. F. STEVENSON, M.B., B.CH. DUBL,
BRIGADE-SURGEON LIEUTENANT-COLONEL,
PROFESSOR OF MILITARY SURGERY, ARMY MEDICAL SCHOOL, NETLEY.

A MAN twenty-five years of age was invalided from India for abdominal aneurysm and arrived at Netley on April 24th, 1894. Previously to enlistment he had been a hard drinker, but he had never had syphilis. He arrived in India in October, 1892, and in the beginning of the following year he first complained of pains in the back and legs. There were no objective symptoms at that time, and he was supposed to be suffering from rheumatism; but in June of that year a small tumour was detected a little to the left of the umbilicus. This tumour gradually increased in size and in September it was said to be the "size of a cricket ball," with a feeble expansile pulsation, accompanied by a thrill and a slight systolic bruit. At this time the pain in the back had quite disappeared, but he suffered a good deal from pain in the abdomen in connexion with the tumour itself. He attributed his complaint to strains received while working with heavy guns. On arrival at Netley he was a healthy looking, well-nourished man. A tumour having all the characteristics of an aneurysm was situated about two inches below the left costal margin and about three inches to the left of the middle line as the man lay on his back. Through the abdominal walls it felt, with the hands placed on either side of it, about the size of a large orange and quite globular in shape. When the patient turned well over to the left side the tumour passed a little further into the left hypochondrium, and when he lay on the right side it passed over to about three inches to the right of the median line; it was, therefore, quite movable from side to side. Judging from its mobility, it was evident that the aneurysm was not on the aorta, and from its situation it was considered probable that it was either on a branch of the cœliac axis or on the superior mesenteric artery. A soft systolic bruit accompanied the expansile pulsation of the tumour, but there were no pressure symptoms; the pulsation of the femorals appeared to be normal. On admission to the Royal Victoria Hospital, Netley, in April, the man was not suffering from pain, though he complained of the discomfort and sleeplessness caused "by the beating of the tumour," but on June 22nd the abdominal pain recommenced and the tumour was noted as "steadily increasing in size." He had at first been admitted into the medical division of the hospital, and whilst there Tufnell's treatment by low diet, restriction in the quantity of fluids taken, exhibition of iodide of potassium, and absolute rest in bed had been tried. He had also been treated (at the suggestion of Professor Wright) with calcium chloride and the inhalation of carbonic acid, with the result of considerably increasing the coagulability of his blood, but with no effect on the size, pulsations, or solidity of the tumour. When medical treatment had failed, and the aneurysm commenced to increase in size, consultations were held on many occasions between the medical officers of both divisions of the hospital with regard to surgical treatment of the case, as to what method of surgical procedure was most advisable or least dangerous. It was decided that proximal pressure was not feasible on account of the situation of the tumour, and that distal pressure should not be attempted for the reason that it had never succeeded when tried in similar cases and on account of the probability of fatally injuring some of the abdominal contents. There, therefore, remained only the immediate treatment of the tumour itself by means of a laparotomy; and the methods rendered possible by this procedure were—(1) the ligature of the vessel leading to the aneurysm, and (2) the introduction of wire or some similar foreign body into the sac in order to induce the formation of a clot. As regards ligature, the fact that the tumour passed over at least three inches to the right or left of the median line as the man lay on the corresponding side at least warranted a hope that it might be found to be so far forward on one of the branches of the abdominal aorta that sufficient of the healthy vessel might be found on the proximal side of it to enable a ligature to be applied at that situation; whilst, if this were found to be impracticable, then the treatment by wire could be carried out. The patient was an intelligent man; he knew he was suffering from a fatal disease, one, moreover, which could not be of long duration, and he expressed himself as being most anxious that something should be done for him in the way of operative treatment. He was willing that any procedure which offered even the faintest chance of cure should be undertaken; as he very forcibly put it—he "would prefer to die in hospital rather than go out to live for a short time on his friends." Under these circumstances he was transferred to the surgical division, and it was determined, on consultation, to perform laparotomy with a view to carrying out one of the methods above referred to.

On the night previous to the operation the skin surface was thoroughly washed with hot water and soap and afterwards with ether; it was then packed with lint dipped in a 1 in 40 carbolic lotion, which early next morning was changed for lint dipped in a 1 in 20 lotion. On July 23rd, at 10 A.M., chloroform having been administered, an incision was made in the median line from one inch and a half below the ensiform cartilage to within an inch of the umbilicus, but which was afterwards prolonged to the umbilicus. When all bleeding had been stopped the peritoneum was opened. The omentum was found to be firmly adherent to the abdominal walls over the tumour and to the tumour itself, and firm adhesions between the tumour and all the structures in its vicinity quite precluded any attempt being made to reach its base or pedicle; ligature of the vessel was, therefore, set aside as impossible. Preparations were accordingly made for the introduction of the trocar and cannula into the sac for the passage of steel wire. For this purpose it was necessary to make certain that no portion of the intestine overlay the aneurysm. The transverse colon and great omentum were pushed upwards off the tumour, and in doing so many adhesions had to be gently broken down; a very distended vessel came into view, and two small branches coming off from it were torn across and required ligation. Beyond this there was no serious hæmorrhage at this stage of the operation. When the colon and omentum had been pushed upwards off the tumour it still appeared to be covered by more than one layer of peritoneum; these were torn through by means of two pairs of dissecting forceps, and the tumour was laid bare over an area about the size of a shilling, showing a greyish-blue surface. At this point a very fine trocar and cannula were passed in at right angles to the long axis of the tumour for about two inches and a half, when the point appeared to be free within the sac. Hæmorrhage immediately occurred alongside the cannula, and continued very freely during the whole time the wire was being passed in (about five minutes). The wire was the finest steel wire, and it had been tightly coiled on a small reel so as to ensure its coiling up within the sac. It was passed through the cannula by means of a small pair of pliers, the wire being held by the pliers at about an inch from the end of the cannula, and in this way it was introduced inch by inch. Two yards were thus disposed of. When the outer end of the wire came flush with the end of the cannula it was pushed onwards and free into the sac by means of a knitting-needle, which had previously been filed down so as just to fit the cannula. The latter was then withdrawn, and in about a minute, under pressure on the orifice, the hæmorrhage above referred to ceased. No blood had entered the peritoneal cavity, so the latter was not flushed out. The wound was closed by two rows of sutures, one of chromicised gut for the peritoneum and deeper portions of the incision, and one of silver wire for the skin. I had intended to use also a continuous horsehair suture for the skin, but the others brought the surfaces so accurately together that this was unnecessary. Boracic acid powder was dusted over the wound, and an iodoform gauze and alembroth wool dressing was applied. The operation lasted an hour and a half; the patient took the anæsthetic well and recovered from it satisfactorily, shock being at that time

TO ILLUSTRATE PROF. STEVENSON'S ARTICLE.



A CASE OF ABDOMINAL ANEURISM, TREATED BY LAPAROTOMY, AND THE INTRODUCTION OF WIRE INTO THE SAC.

THE SAC LAID OPEN

A.B	*Aorta.*
C.C.C.	*Coagulum chiefly around.*
D.	*Wire.*
E.E.E.	*Wall of Sac.*
F.	*Continuation of Mesenteric Artery.*

but slightly marked. No food or drink was given during the day, a few pieces of ice only being allowed. At 6 P.M. the temperature was 93·2° F. and the man seemed to be fairly strong and quite comfortable. At 7 P.M. severe hæmorrhage occurred, the dressings and sheet suddenly becoming saturated. The dressings were then removed and the blood was found to be coming from the lower end of the wound, which corresponded with the site of the trocar puncture. The wound was not reopened because I was certain that the hæmorrhage was not from vessels in the abdominal walls and because local treatment for hæmorrhage from the puncture in the sac did not appear feasible. Hæmorrhage again took place at 9 P.M., and also at 2.30 A.M. An ice-bag was then applied over the wound, a four-ply of iodoform gauze intervening, and no more hæmorrhage occurred. At 9 A.M. next day he was in a distinctly low condition, apparently suffering from shock from loss of blood, but not to any marked degree. He had vomited once or twice. The temperature was 99·6°, the pulse was weak (100), but quite perceptible at the wrist, and the respirations were 30 per minute and sometimes of a sighing character. He complained of extreme thirst. The wound was quite dry; the ice-bag was therefore removed and the dressings reapplied. He begged for lemonade, and some was allowed to be given him in small quantities. During the forenoon he vomited two or three times. He said he "wanted to cough, but could not." At 12 noon he was suffering from intense pain in the wound, and a hypodermic injection of morphine was given. At this time there was nothing in his condition to lead me to suppose that he was in any immediate danger of death. At 1 P.M. he was restless and inclined to retch. At 1.35 P.M. he died suddenly, the result, I have no doubt, of syncope, caused probably by his sitting up in bed, or attempting to do so, in order to vomit. He had lived twenty-seven hours after the operation.

At the post-mortem examination the stomach was found to contain an amount of fluid not warranted by the orders given regarding the quantity of drink to be supplied to him, and I have no doubt that the distended condition of the stomach tended to produce the syncope which caused the fatal issue. The aneurysm was found to be on the superior mesenteric artery. It had diminished very considerably in size after death in consequence of the cessation of tension in the sac. It was fusiform in shape, about six inches long, three inches and a half in diameter at the base, and somewhat less at the outer end. The dilatation commenced at the origin of the vessel and included the front wall of the aorta at this point. From the distal end of the sac the artery continued its course slightly dilated for an inch or so, but otherwise apparently healthy. The sac in its contracted condition was quite filled with firm recent clot entangled in the coils of wire, which were themselves entangled in each other, and its walls were lined with old laminated coagulum, this in parts being nearly half an inch in thickness. The adhesions of the tumour to the omentum had been broken down at the operation, but at the necropsy firm adhesions were found between its sides and the small intestines in its vicinity. There was no trace of blood in the abdominal cavity or any sign of commencing peritonitis. The sigmoid flexure and rectum were contracted to the size of the little finger, but they dilated to the normal diameter while being removed from the body, and no explanation of this condition was apparent. Both ventricles of the heart contained dark-coloured clots. The aorta in its whole length showed numerous patches of atheroma.

Mr. C. H. Moore of the Middlesex Hospital was the first surgeon to suggest the introduction of wire into the sacs of aneurysms not amenable to other methods of treatment. From a by no means exhaustive search through the literature of the subject I have collected records of ten cases of aneurysm treated in this way. Of these, two cases were cured, in two cases no definite result was produced, and in six cases death resulted. Mr. T. Holmes[1] has reported a case treated by Dr. Murray of Newcastle; the patient died from suppuration of the sac. Dr. Demville of Chatham[2] treated two cases with no definite result. Loreta[3] introduced two metres of silver-plated copper wire into an abdominal aneurysm, and the patient recovered. Mr. Hulke[4] introduced forty feet of steel wire into a thoracic aneurysm; the patient died. Mr. Pearce Gould[5] treated a thoracic aneurysm by means of thirty-two feet of steel wire; the patient died. Mr. Morse[6] has reported a case in which he treated an aneurysm of the abdominal aorta by laparotomy and the introduction of one yard and a half of silver-plated copper wire, recovery taking place. Mr. H. Morris[7] treated a case of abdominal aneurysm, but only one foot of wire could be passed; the patient died. Guido Baccelli of the Italian Paris Academy of Medicine recommended the use of watch springs for the purpose under consideration, and this was done twice unsuccessfully. The two case above referred to as "cured" are probably the only ones in which this result has been achieved by this means. In considering the question of the propriety of performing this operation, I take it that the surgeon would only be justified in the procedure: (1) when his patient was in imminent danger of death from impending rupture of the sac of an aneurysm which was not open to treatment by other means offering a hope of cure; and (2) when the probable result of the treatment had been clearly explained to the patient, and he expressed himself as anxious that it should be undertaken. Both these conditions existed in the above case. The man's death, no doubt, was due in a secondary way to hæmorrhage. He died from syncope eleven hours after all bleeding had ceased and when he was apparently in a fair way to recover from its effects. A short time before his death his temperature was 99·6°, and his pulse was quite perceptible at the wrist. He was not, therefore, in a condition of collapse from loss of blood; but he was in a sufficently low state to allow of the effort he made inducing a syncope from which the heart did not recover. As regards the hæmorrhage from the trocar puncture, I have no explanation to offer for its occurrence. The instrument was specially made for the case, and was extremely small, only large enough to pass the smallest steel wire made, and all bleeding from it quite ceased a few seconds after the cannula was withdrawn. In the accounts of other cases similarly treated hæmorrage from the puncture is not mentioned as one of the dangers to be considered. The mechanical effect of the wire towards the formation of coagulum within the sac was found at the post-mortem examination to have been all that could have been desired so far; the sac was found filled with firm clot entangled in the coils of wire. But, after all, the question arises: Had the man lived long enough for the process of cure of the aneurysm to proceed so far as to block the vessel, what would have been the effect of this state of things on the nutrition and blood-supply of that portion of the intestinal tract supplied by the superior mesenteric artery?

The coloured illustration (painted by Surgeon-Colonel Irving) is an excellent representation of the aorta, the aneurysmal sac, and the wire and coagulum *in situ* soon after removal from the body; the specimen itself is in the museum of the Army Medical School, Netley.

Netley.

[1] THE LANCET, June 8th, 1872.
[2] THE LANCET, Aug. 26th, 1871.
[3] The case was first published in the Memoirs of the Royal Academy of Sciences of the Institute of Bologna, Feb. 8th, 1885.
[4] THE LANCET, Feb. 27th, 1886.
[5] Brit. Med. Jour., Oct. 12th, 1889.
[6] The Pacific Record for 1887.
[7] THE LANCET, April 16th, 1887.

A CASE OF DOUBLE POPLITEAL ANEURYSM.

BY WALTER REID, M.D., L.R.C.S.EDIN.,
DEPUTY INSPECTOR-GENERAL, ROYAL NAVY.

A MAN thirty years of age was admitted into Haslar Hospital on Aug. 16th with an aneurysm in each popliteal space. The left one was a large sacculated aneurysm displaying the usual characters of that disease, whilst the right was considerably smaller and more elongated in form. There was nothing definite in the history of the case to account for the occurrence of these two aneurysms except that the man's general health was not good and that he thought he had strained himself whilst standing about on board a rolling ship at sea. Owing to my absence on leave at the date of the patient's admission to hospital, the case was taken in hand by Surgeon Townsend, who began to treat the left (or larger) of the two aneurysms by slow or intermittent pressure, leaving the other alone for the time being. By the application of Carte's tourniquet to the left femoral, according as it could be borne, consolidation gradually took place and at the

end of five weeks was completed and the aneurysm cured, a large, hard, non-pulsating mass remaining in the popliteal space. Having now returned to duty I determined to undertake the treatment of the right aneurysm by the method with which my own name is associated in surgical writings, and which consists in locking up the blood in the aneurysmal cavity by means of elastic appliances sufficiently long for its coagulation *en masse*, and not by the deposition of fibrinated laminæ as usually follows treatment by ligature or slow pressure. I began by keeping the patient at rest for a few days on a light non-stimulating diet. Iodide of potassium was also administered with the view of increasing the plasticity of the blood. Carte's tourniquet was occasionally applied to the femoral for the purpose of opening up the collateral circulation preparatory to the occlusion of the vessel by the rapid consolidation of the aneurysm. On Oct. 3rd, the patient consenting to take chloroform if necessary, I carried out the method originally described by myself,[1] using in addition a protector over the aneurysm so as to take the pressure of the elastic bandage. This was made of gutta-percha so as to cover the tumour in the popliteal space with the joint somewhat flexed, and sufficiently strong to protect it effectually from direct pressure. I now applied an elastic bandage firmly and evenly from the toes upwards and over the protected aneurysm to the level of the middle third of the thigh. Here a soft elastic constrictor was secured over several turns of a flannel bandage. The elastic bandage and protector were now removed, whilst the constrictor was kept in position. The blood was thus locked up in the aneurysmal cavity, whilst the rest of the limb below the constrictor remained bloodless. It is important to render the limb bloodless in this way, as otherwise coagula might form in the veins and smaller arteries during the arrest of the circulation by the constrictor. Were they to do so there might be a risk of their interfering seriously with the circulation through the limb after the main vessel has become obstructed by the rapid consolidation of the aneurysm, and the blood-supply has to be passed down by the collateral branches with diminished force. The patient was now covered with warm blankets, the limb being semi-flexed and the elastic constrictor remaining in position. He complained of no pain during the first forty-five minutes; after this he began to feel much distressed, but preferred to do without chloroform. At the end of an hour—the aneurysm being then hard, solid, and decidedly smaller—I carefully adjusted a Carte's tourniquet upon the femoral, and removed the constrictor and flannel bandage; but about five hours afterwards on easing off the tourniquet a pulsation (faint, tremulous, and at times hardly perceptible) was felt in the aneurysm. This symptom occurring at this stage has been noted in other cases treated by the same method, and was referred to by Mr. Pearce Gould in an interesting paper read by him at the International Medical Congress in 1881, when this mode of treating aneurysm was discussed. Mr. Pearce Gould explains its occurrence by the clot contracting more rapidly than the sac upon it, thus leaving a space between the two, which after a time becomes filled either by the deposition of fibrin or by further contraction of the sac. In the present case it ceased after five days, and the vessel became occluded in the lower part of Hunter's canal. It is instructive at the date in which I write to observe the conditions arising from the treatment of these two aneurysms in the same patient by methods differing essentially from each other in principle. In the left one, treated by slow and intermittent pressure, which aims at consolidation by the gradual deposition of fibrinated laminæ in the cavity of the aneurysm, the remains now form a hard, unyielding lump in the popliteal space, causing a good deal of discomfort to the patient and interference with the use of the limb. It must be some time before this mass of fibrin can be absorbed to any extent and cease to trouble the patient. On the other hand, in the right aneurysm, treated by a plan which aims at the rapid formation of an ordinary blood-clot in the aneurysmal cavity, the soft material has contracted as well as the sac which encloses it, so that there is only a small mass left in the floor of the popliteal space, which can hardly be distinguished by the observer and is not felt by the patient in any way. Another point of difference in the results is that in the left limb, treated by the slow method, no pulsation can be felt in the femoral artery below the origin of its deep branch in the groin, whilst in the right limb the femoral can be felt pulsating in the lower part of Hunter's canal. In my original case, in which the patient died eight months after cure from other causes, I had an opportunity of examining and making a preparation of the parts. This preparation is now in Haslar Museum and shows that the vessel is only occluded for about two and a half inches of its course.[2] It would appear, then, from these two cases that when this plan of treating popliteal aneurysm is successful the circulation is brought down through the main vessel of the limb and becomes finally arrested only a short distance from the aneurysm, as if, in fact, the latter were cut out and the vessel tied.

Haslar.

[1] THE LANCET, Sept. 28th, 1875.

[2] THE LANCET, Aug. 5th, 1876.

THE CONDITION OF THE BLOOD IN THE CYANOSIS OF CONGENITAL HEART DISEASE.[1]

BY G. A. GIBSON, M.D., D.SC. EDIN.,

PHYSICIAN TO THE DEACONESS HOSPITAL; ASSISTANT PHYSICIAN TO THE ROYAL INFIRMARY; LECTURER ON MEDICINE AT MINTO HOUSE, EDINBURGH.

NOTWITHSTANDING the numerous works published within recent years on the state of the blood in disease, we nevertheless not only need information as to the changes which it undergoes in a great variety of different conditions, but we also require explanations to account for many of the alterations which are generally recognised. This is the case even in regard to some of the affections met with in every-day practice; in the disturbances of the circulation produced by valvular diseases, for example, there are some modifications of the blood of common occurrence, but as yet insufficiently known and inadequately explained. More particularly is this true of the state of the blood in the cyanosis of congenital heart disease, which presents changes which have from time to time been recorded, but have not yet received satisfactory elucidation. A most interesting case of congenital disease of the heart has lately been for some time under my observation, and from the clinical features presented by the patient some conclusions have been forced upon me to which attention will in this paper be briefly directed.

A boy aged eight years was admitted to the Deaconess Hospital on Oct. 25th, 1894, complaining of breathlessness on exertion. Both parents were alive and had always been healthy; he was one of a family of eleven, of whose members two sons had died, one from scarlet fever and another from hydrocephalus, but the remaining six sons and two daughters were in good health. At the time of his birth the patient was apparently a healthy infant, but when a few months old he became bluish in colour and had always since been delicate. He had an attack of scarlet fever some years ago from which he recovered perfectly. On admission he was observed to be deeply cyanosed; the skin everywhere was of a bluish tint, the lips were almost black, and the conjunctivæ were dusky. The fingers and toes were markedly clubbed, and the nails, which were much curved, were almost black. The patient was 3ft. 9in. in height, and weighed 2st. 10lb. The temperature was below normal, but has fluctuated between 97° and 99° F. The alimentary system showed no symptoms of disturbance. The second dentition was in progress. The tongue was clean, but of a very dark purple colour. The liver exactly reached the costal margin in the right mammillary line. The hæmopoietic system presented some interesting facts. The spleen reached to the mid-axillary line, and was therefore of the usual size. On examination of the blood with the hæmoglobinometer the hæmoglobin was found to be 110 per cent. With the Thoma-Zeiss hæmocytometer the red corpuscles were seen to be 8,470,000 per cubic millimetre, while the white corpuscles numbered 12,000. The spectroscope showed the characteristic double band of oxyhæmoglobin. With regard to the circulatory system, the patient on any exertion became much more cyanosed and panted violently, but when lying quietly in bed showed much less cyanosis and almost no breathlessness. On inspection there was no visible pulsation in the neck, and in the precordial region there was no impulse save the apex

[1] Read before the Edinburgh Pathological Club on Dec. 19th, 1894.

beat in the fifth left intercostal space. The pulse varied from 64 to 114. The vessel was rather empty, the pressure low, and the pulsation regular. No thrill was felt in the precordia, but an impulse with both systole and diastole, and the apex-beat was determined to be one inch and three-quarters from the mid-sternum. On percussion the borders of the cardiac dulness were found at the level of the fourth costal cartilages to be one inch and a half to the right and two inches and a half to the left of the mid-sternal line. A loud rasping murmur was heard over the entire precordia; its maximum intensity was at the left edge of the sternum at the level of the fourth costal cartilage, and it was propagated upwards as far as the external ends of both clavicles—to the right as far as the mammilla, to the left four inches beyond the mammilla and downwards along each costal margin to the same extent—viz., two inches and a half below the level of the xiphoid cartilage. No murmur could be heard in any vessel. The thorax was distinctly pigeon-breasted. There were numerous rhonchi throughout the chest, but otherwise the respiratory system presented no symptoms requiring notice. The respirations numbered 24 per minute. The urine was pale in colour and acid in reaction; its specific gravity was 1022. It contained no abnormal constituents. The integumentary system was, apart from the high degree of cyanosis, not distinguished by any special characters, and the nervous system was in all respects normal. Although the patient had never been taught, on account of his state of health, he was an intelligent and observant boy, always enjoying high spirits.

The diagnosis of the cardiac lesion was attended by some difficulty. There could be no doubt that the condition was congenital, for although the cyanosis only showed itself after the lapse of some months from the date of birth, the patient had not during the interval suffered from any acute disease capable of causing endocarditis. In this respect the history of the case is in accord with that of most congenital heart lesions. The maximum intensity of the murmur being almost in the tricuspid area might favour the view that there was regurgitation at the right auriculo-ventricular orifice; but such an explanation is negatived by the absence of any venous symptoms in the neck. On the other hand, the murmur might be produced by obstruction at the pulmonary orifice, and heard with greatest intensity over a dilated and hypertrophied right ventricle, such as undeniably is present in the case; or, again, the murmur might be the result of a communication between the two ventricles, caused by a perforate septum ventriculorum, allowing a stream of blood to flow from the left cavity into the right, and thus to produce over the right ventricle a systolic murmur. The lesions probably present, judging not only from the clinical facts of this case, but also from the experience of similar cases, are some obstruction at the pulmonary orifice and an imperfect ventricular septum. Such is the provisional diagnosis of the case.

Attention must now be given to the condition of the blood. As has been stated in the brief abstract of the case, the amount of hæmoglobin was 110 per cent., and the number of the hæmocytes and leucocytes respectively 8,470,000 and 12,000 per cubic millimetre. In another patient, a boy aged two years and four months, suffering from congenital heart disease (for the opportunity of observing whom my thanks are due to Dr. John Thomson), the hæmoglobin was 92 per cent., the red corpuscles numbered 6,700,000 and the white corpuscles 12,000 per c.mm. The number of the blood corpuscles in congenital diseases of the heart appears to have been first observed by Toeniessen, who found in a girl aged ten years, with congenital pulmonary stenosis, 7 540 000 hæmocytes, and in a boy aged thirteen years, suffering from the same affection, 8,820,000 per c.mm. Since his observations similar facts have from time to time been placed on record. Carmichael, for example, in publishing a most interesting case of congenital heart disease recently, states that the patient had 8,100,000 red corpuscles and 16,000 white corpuscles per c.mm.

Now, before entering upon the question as to how such an increase can be produced, it may be well to recall the two diverse explanations of cyanosis—the one, that of venous stasis, originating with Morgagni; the other, that of a mixture of the arterial and the venous blood, suggested by Hunter. Both theories have been supported by numerous observers from the time of their inception until the present day, but the preponderance of opinion is in favour of the theory of Morgagni. The view of Hunter may be said to be negatived by the simple facts that in many cases permitting the mixture of arterial and venous blood there is no cyanosis, and that in many cases of cyanosis there is no possibility of the mingling of venous and arterial blood. Starting with the conception that cyanosis is produced by obstruction to the circulation and venous stasis, the question now arises why this condition should be associated with an increase in the number of the blood-corpuscles. It is not only in the cyanosis of congenital lesions that the increase is found, but in all cases where cyanosis is really present on account of failure of the circulation. To this point Toeniessen and Schneider have particularly called attention, and of the accuracy of the observation anyone can convince himself by investigation of the blood. The work of Malassez seems to show that the blood in the superficial parts of the body contains a larger number of red corpuscles than that from the deeper layers, and Perzoldt and Toeniessen believe that this increase is caused by the loss of fluid from the surface, while the blood of the interior is constantly receiving fluid from the alimentary canal. Even if this be correct, it cannot be accepted as an explanation of the great increase in the number of the corpuscles found in cyanosis, as it would involve the postulate that in some cases where the number of corpuscles is nearly doubled, the quantity of the fluids of the blood must be reduced nearly to one-half. Cohnheim's celebrated experiment of tying the crural vein of the frog, which is followed by a considerable increase of the corpuscles in the vessels, with the transudation of serum into the surrounding tissues, may be regarded as an explanation of the moderate increase in the cases accompanied by anasarca, but it has no special bearing upon cases of congenital cyanosis in which there is no drain of fluid into the tissues. It may possibly be held that in such cases the lymph vessels are unusually active, and that the fluid constituents of the blood are as rapidly absorbed as they transude. Such an opinion can scarcely be seriously entertained. The backward pressure on the venous system which causes the transudation must tell on both terminations of the absorbents. It may be admitted freely that the increased pressure on the peripheral veins may tend to raise that impelling the fluids into the commencement of the lymphatics, but it must not be forgotten that an elevation of pressure in the great veins will hinder the return of the lymph by pressing upon the openings of the lymph vessels into the veins. It is probable that the increase in the red corpuscles may be to some extent compensatory in cases of cyanosis. To say this, however, is not enough; it affords no rational explanation of the process by which the increase is brought about. Nature does not work by such direct methods as would require to be invoked if the increase of the corpuscles were regarded as a simple compensatory change, balancing the diminished power of oxygenation. Compensation in valvular lesions, for example, is produced by the definite structural changes constituting hypertrophy, caused by increase of work, and compensation in cyanosis must have some reasonable explanation also. It seems to me that such an explanation may be found in a consideration of the functions of the red corpuscles under changed conditions. In venous stasis the corpuscles are insufficiently oxygenated, they cannot perform such an active part as oxygen carriers, and they cannot yield so much oxygen to the tissues. It must further be remembered that in cyanosis there is less metabolism in the tissues, and therefore less waste produced. In a word, the functions of the corpuscles being lessened, the tear and wear which they undergo is reduced, and the duration of their individual existence increased. The number of the corpuscles must in this way be proportionately augmented, and this must lead to the numerical increase, as well as to the high percentage of hæmoglobin, until a balance is struck between the production and the destruction of the blood-corpuscles.

It is a pleasure to express my warm thanks to Dr. J. G Cattanach, resident medical officer to the Deaconness Hospital, for his unwearied assistance in the investigation of the blood in the cases to which reference has been made and in the examination of their clinical details.

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Edinburgh.

THE RELATION OF BACTERIA AND THEIR TOXINES.[1]

By E. KLEIN, M.D., F.R.S.,

LECTURER ON GENERAL ANATOMY AND PHYSIOLOGY IN ST. BARTHOLOMEW'S HOSPITAL.

THE subject to which I would particularly draw your attention this evening is the nature of the activities of pathogenic bacteria. For convenience I shall formulate two propositions, adducing facts in support of each, and then I shall go on to discuss certain considerations having to do with this subject matter.

PROPOSITION 1: *Pathogenic bacteria produce by their growth and multiplication specific poisonous substances which we call toxines.*—These poisons differ one from another according to the species of pathogenic bacteria, and the changes induced in the animal body by different microbes are due to these toxines. Before the existence and nature of these substances were recognised it was held—as, for instance, in the case of anthrax—that the induced illness was due to mechanical action exerted by the bacillus on the body of the affected animal. As the anthrax bacillus is an organism which grows freely, and perhaps more conspicuously, in the presence of oxygen, it was thought that this bacillus consumed all the oxygen in the tissues of the infected animal and in this way deprived it of life. It was soon discovered, however, that this was not a sufficient explanation, for it was found that an animal could be made fatally ill with anthrax and yet antecedent to its death by the disease the bacilli of anthrax could only in small numbers be detected in its blood. Hankin was the first to demonstrate that it is possible to procure by artificial culture of microbes in nutrient media certain toxic substances comparable to toxic albumoses. Fraenkel afforded a like demonstration, and Sidney Martin elucidated the subject to a much larger extent; but before toxines were isolated by their methods evidence existed tending to show that certain bacteria produced toxines. Thus, the microbes of typhoid fever and septicæmia were known, when grown in an albumen mixture, to contribute to such medium a poisonous quality. Roux and Yersin were, however, the first to demonstrate that the broth in which the diphtheria bacillus had been cultivated contained poison in a very concentrated form. A whole series of researches were next made by Kitasato and Brieger on the tetanus bacillus, with the result of demonstrating that injection into the animal body of the pure tetanus toxines obtained in artificial culture produced symptoms identical with those induced if the tetanus bacteria themselves were introduced into the experimental animal and allowed to grow and multiply therein. There can, therefore, be no question whatever as to the proposition that the pathogenic bacteria produce in the animal body toxic substances.

PROPOSITION 2: *Toxines as far as they have been investigated are definite chemical bodies.*—As a result of chemical analysis by Dr. Sidney Martin, it has been found that albumoses and alkaloids are present in the animal body in anthrax; and that in diphtheria there is present in the false membrane a body which behaves in every respect like a ferment, which ferment in turn acting on the tissues produces acid and alkaloidal bodies and albumoses. Similarly it has been found that, in artificial media, the bacilli of diphtheria and tetanus elaborate each a ferment, whereas under like conditions the bacilli of anthrax elaborate albumoses and an alkaloid. What then, it may be asked, is a given toxine? Is it the secretion of a bacterium, like the ferment of diphtheria, for instance; or is it of the nature of a proteid body liberated by metabolism in the medium in which the bacterium has grown; or, again, is it part and parcel of the bacterial body itself? The poisonous substances produced in the animal body by the life processes of bacteria must be carefully distinguished from the poisonous substance or substances present within the protoplasm of the bacteria themselves. All observations tend to show that there is a definite distinction to be drawn between the poisons which may be present in the bacteria themselves and the poisonous substances liberated or elaborated by these organisms. When certain bacteria are introduced in large quantities into the peritoneal cavity of a rodent these bacteria themselves without any of their metabolic products are capable of producing symptoms of poisoning. For instance, if the growth of a given microbe scraped from the surface of a solid culture medium be distributed in some neutral fluid and then injected into an animal it is the bodies of the bacteria themselves that are introduced thereto, not the toxines, which they have elaborated in the culture medium. And it has been found, as a matter of experiment, that such inoculations produce, in the case of several species of bacteria, a poisonous action quickly causing fatal peritonitis; in two or three hours the animal is ill, and within twenty-four hours the illness is fatal. The typhoid bacillus and several other microbes behave in this way. It matters not whether the bacteria are introduced alive or dead into the peritoneal cavity. If the bacteria are previously killed by exposure to a temperature of 70° C. their bodies produce the same poisonous action, though it must be added that the poisonous action is more pronounced if smaller quantities of the living bodies are used than when larger quantities of the dead bacteria are employed. Evidently when the living bacteria are introduced in small quantities they go on growing and produce their toxines. The bacteria *per se* are in some cases, but not in all, poisonous. Thus, if the anthrax bacillus, or the diphtheria bacillus, or the fowl cholera bacillus, is introduced into the peritoneum of rodents no poisonous action results. The protoplasms of these microbes are not, like the protoplasm of the typhoid bacillus or of the vibrio of cholera, poisonous. Furthermore, as regards microbes whose protoplasms are poisonous, if a non-fatal dose—sufficient to make an animal ill, but not to kill it—is injected into the peritoneal cavity such an animal is protected from further protoplasmic poisoning by the same bacterium; but it is not protected against the toxines elaborated by the same species outside the animal body in artificial media. A very curious observation has been made with reference to these bacterial bodies. They probably contain more than one kind of poison. If, for instance, the enteric bacteria are killed by heat, and the precipitate extracted from their bodies by water, it is possible to wash out a substance which produces a febrile rise of temperature in experimental animals, and substances such as this are called "pyrotoxins" because they are capable of producing fever. These, however, are not the substances which have a permanent protective action when bacteria alone are introduced into an animal; it is some other kind of substance bound up in the protoplasm of the microbe that protects the animal against further inoculation with the bacterium *per se*.

And next as to antitoxins. When an animal has passed through one attack of a given infectious disease—that is, when an animal has served as a host for the growth and multiplication of a particular pathogenic bacterium—it is found that its blood has acquired a peculiar faculty. The blood has become capable, not only of inhibiting further growth of the bacterium, but also of neutralising the toxines produced by the bacterium. Thus, if the cholera vibrio is introduced into the peritoneal cavity of a rodent in quantity just sufficient to produce an illness that does not prove fatal, such rodent ultimately withstands repeated injections of otherwise fatal doses of the vibrio. And further, if now blood of the animal that has thus acquired immunity is taken from it and introduced into the peritoneal cavity of another rodent this second animal will not become ill at all; it is protected. This has been shown in the case of tetanus, diphtheria, and so on. Animals, therefore, which have acquired immunity possess in their blood a something that they had not before, and this something belongs to a group of substances called "antitoxins." These antitoxins must be very complex bodies because they are capable, not only of inhibiting the life processes of bacteria, but also of neutralising the toxines previously elaborated and that have been dissociated from the bacteria which produced them, and these two functions are, be it observed, utterly different.

How are these complex antitoxin bodies thus possessing dual functions produced? There is a variety of theories as to this. In the first place there is the theory that these antitoxins are produced by the tissues themselves as a sort of defence against the toxines which have gained access to them, the toxines being thought of as stimulating the tissues to the production of certain defensive substances which are therefore called "antitoxins." In diphtheria the antitoxins produced in this way by the cells of the tissues are considered to comport themselves just like ferments. This is the theory held by the French school. The Munich school says: There is no reason why the toxines themselves should

[1] Abstract of a paper read before the Epidemiological Society on Dec. 14th, 1894.

not become converted into antitoxins. There is, however, little evidence in support of this view; and, indeed, there is some evidence which militates against it. Moreover, it seems to be reasonable to assume that the toxines stimulate the animal body to the production of antitoxin. There is yet another theory, and that is that possibly the bacteria indirectly play a part in the production of these defensive antitoxins. This raises the question, What becomes of the bacteria themselves in the animal that has been made ill by them and has recovered? The theory that bacteria have been in such cases swallowed up by phagocytes is long since dead and buried. It is now perfectly well established that acquired immunity is purely of a chemical nature, and therefore the theory of phagocytes is superfluous. But the bacteria may nevertheless themselves yield some substance which may assist in the production of these antitoxins. For when an animal is recovering from an infectious disease the bacteria which caused it degenerate *pari passu* with the progress of recovery, and their substances become absorbed and pass into the general tissues of the animal, so that the bacterial bodies themselves become part of its tissue juices. In some cases there is an excretion of bacteria, but not very generally; in most cases they are absorbed in the way I have noted. That incorporation of the dead bacteria with the tissues of the recovered animal may have to do with its own immunity and with the antitoxic quality of blood serum withdrawn from it is suggested by the following facts. When *dead* bacteria are introduced into the peritoneal cavity of a guinea-pig they are capable of protecting that animal's peritoneum against the growth and multiplication there of the living bacteria subsequently introduced. This is the case with the cholera vibrios, the typhoid bacillus, and the colon bacillus. Indeed, it is not very difficult to imagine that other substances superadded to the tissues—as, for instance, dead bacterial protoplasm—may form part of these antitoxins, and I, for my part, incline to this view. In a word, I suspect that antitoxic serum obtains from dead bacterial protoplasm that it has assimilated its power of inhibiting the processes of living bacteria, and that its power of neutralising the already formed metabolic products of bacteria is due to tissue change resulting from contact of the tissues themselves with metabolic poison. But, whatever the nature of these antitoxins, it will no doubt be found that they are not of the simple character that has been assumed—namely, merely secretions of tissue juices—they must needs be of a very much more complex nature.

A CASE OF POST-MORTEM PARTURITION.

BY ALBERT GREEN, M.B., L.R.C.P. LOND., M.R.C.S.,
SURGEON TO THE CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.

THE following are the particulars in reference to the post-mortem parturition mentioned in an annotation in THE LANCET of Nov. 24th, 1894.

A single woman aged about twenty, and following the occupation of dressmaker, lived with her father and mother in a model dwelling-house in Chesterfield of which the father had the management. For about a week previous to Wednesday, Oct. 24th, she had had headache, but otherwise was quite well. The headache does not appear to have been severe and she took but little notice of it. On the morning of the 24th she had breakfast with the other members of the family and appeared as well as usual. In the middle of the day she was not down to dinner, but remained upstairs complaining of headache. In the evening, about 10 o'clock, her father went to the bedroom and found her in bed; she was still complaining of headache. She told him he might go to bed as "she should be all right in the morning." Later (about 11 P.M.) a friend went up to see her. Except for the headache there seemed to be nothing much the matter with her. She laughed and talked as usual. The friend left some time between 12 midnight and 1 A.M. Between 1 A.M. and 2 A.M. the sister was called to her room. She found her out of bed, sitting on the floor with her back against the wall. She did not speak and appeared unconscious. With assistance she was lifted on to the bed. The witnesses speak of her at times becoming "stiff," of her eyes being fixed, of her legs (though "stiff") trembling, and of the arms and eyelids "working." The father was called and went for a medical man. He arrived in about half an hour and from the symptoms then observed he expressed an opinion that some alkaloidal poison had been taken. He examined the abdomen and was satisfied that the woman was pregnant and near full time. The "fits" are stated to have each lasted about ten minutes; the tonic nature of the convulsions seems to have been more marked than the clonic. There seems to have been very little struggling. I thought that the long duration of each "fit" might be accounted for by its being made up of a series of "fits." She never regained consciousness till the time of her death, which was between nine and ten in the morning. The "fits" are said to have become less frequent towards the end. At the commencement they are stated to have occurred at the rate of about three or four in an hour. When the medical man (Mr. Bowker) arrived he found that she had bitten her tongue, and a piece of cork was placed between the teeth. Mr. Bowker again visited her about 9 A.M. He found her in a comatose condition and dying. The pupils are said to have been dilated from the first, and the face to have been very pale during the "fits." Until the medical examination none of her family had the slightest idea that she was pregnant. Her figure was short and broad, and she was very corpulent. So much for the symptoms during life.

The inquest, which was held on Friday, Oct. 26th, was adjourned till Tuesday, Oct. 30th, in order that a post-mortem examination might be made and the contents of the stomach, with the other viscera, analysed. By order of the coroner I made the post-mortem examination on Saturday afternoon, Oct. 27th, about fifty-three hours after death. The body had been laid out in the usual way by two women on Thursday morning, about two hours after death. The body was lying on its back on a small bed and was covered with a sheet. The legs were tied together at the ankles. On lifting the sheet I saw a fleshy body lying between the thighs of the mother. This was the back of a full-time or nearly full-time child. The legs were extended at the knees and flexed at the hips, so as to be doubled up underneath the child's body with the feet near its chin. The head, face downwards, was also flexed on the chest. The head was next to the vulva, so evidently it had been a breech presentation. The fundus of the inverted uterus protruded from the vulva, and still attached to this was the placenta. The umbilical cord was much shorter than usual. On separating the placenta and attempting to push back the fundus into position I found that the intra-abdominal pressure immediately forced it back again. The perineum was ruptured to a considerable extent. I was unable to decide by the naked-eye appearances of the laceration as to whether this had been done during life or after death. There were no marks of bleeding on the linen on which the body rested or on the shirt which partly covered it. The edges of the laceration were gaping and the opposing surfaces had a reddish appearance, dotted with yellowish specks. I may here say that the evidence of the women who laid her out proved conclusively that there was no birth, and no signs even of an impending birth, at the time they performed those duties. The vulva was then free from injury of any sort, and so far as they could judge was normal in appearance. Considering the time that had elapsed since death (only fifty-three hours), putrefactive changes were very marked. The face was greatly swollen and quite black. The features were unrecognisable. The front of the chest was covered with large dark-green patches, especially marked about the breasts. The surface of the abdomen was similarly affected, but to a less extent. The abdomen itself was enormously swollen, and on cutting into it gas escaped with great force. The body had been kept since death in a fairly cool room, though the weather for the time of year was warm and damp. The body was very fat. The stomach contained only a few drachms of thick, yellowish fluid. There were many little air vesicles scattered over its mucous membrane, and reddish patches, probably due to post-mortem staining. The liver was so soft as to be almost diffluent. There was nothing noticeable about the condition of the kidneys or the brain. The bladder was empty. The stomach and contents, with the duodenum, the liver, kidneys, and spleen, were sent to Mr. Allen of Sheffield for analysis. He satisfied himself as to the absence of any strychnia, but in consequence of the advanced state of putrefaction of the viscera, he stated it would have been a matter of considerable difficulty and would have required a much longer time than had been given him to have searched for the various other alkaloidal poisons. The symptoms during life appeared to point to strychnia as the only one likely. He

was surprised at the number of cadaveric alkaloids that had already been formed, and remarked upon the definite reactions which they gave out in the process of testing.

In conclusion, the interesting features of this case are—(1) the difficulty in the diagnosis of the symptoms during life; (2) the post-mortem birth of the child due probably to post-mortem contraction of the uterus, or to pressure of gases generated by putrefaction in the abdomen, or to both those causes together—no doubt labour had commenced previously to death; (3) the well-marked laceration of the perineum; (4) the inversion of the uterus; and (5) the remarkably rapid putrefactive changes that had occurred. The fact of its having been a breech presentation seems to make this case even more remarkable. In giving evidence at the inquest I expressed an opinion—(1) that the symptoms observed during life did not correspond exactly with those of any known poison; (2) that puerperal convulsions would be sufficient to account for death and probably caused it; and (3) that it was possible for the child to have been expelled from the maternal passages after death if labour had commenced previously. A verdict was returned in accordance with the medical evidence.

Chesterfield.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

MALIGNANT JAUNDICE IN A CHILD TWO YEARS OF AGE.

By H. B. DONKIN, M.D. OXON., F.R.C.P. LOND.,
PHYSICIAN TO THE EAST LONDON HOSPITAL FOR CHILDREN.

SUCH a case as the following, which has recently occurred in my hospital practice, is sufficiently rare to be worthy of record in the columns of THE LANCET.

A girl two years of age was admitted into the East London Hospital for Children on Nov. 22nd, 1894, with well-marked jaundice of skin and conjunctivæ. She was said to have been always weakly and to have had pneumonia a year previously, but no other definite illness. Her family history was good. Her illness began three weeks before admission with a "cold." The child had a cough and was constipated and sleepy; the appetite failed, but there was no coryza. Jaundice was noticed two weeks before admission; the motions were white and the urine was of deep colour, staining linen. She vomited four days before admission and was restless at night, throwing herself about. On admission jaundice was found to be well marked, and the child appeared to be very ill and rather restless. The lips were of good colour. There was no cough and the temperature was normal. Nothing abnormal was revealed by physical examination of the heart and lungs. The liver was felt one finger's breadth below the costal margin, somewhat hard and smooth. The upper limit of dulness was perhaps a little lowered. No other abnormality could be detected anywhere. She passed a fairly quiet night on the 22nd, though she was somewhat restless. About ten o'clock on the morning of the 23rd she became very restless, and soon after grew apparently unconscious of her surroundings. Delirium set in, soon developing a maniacal character, the child throwing herself about in bed and biting her clothes and hands or anything she could reach with her mouth. The pupils were equal and rather contracted, but reacted to light. The pulse was 120, irregular; the temperature was still normal. The urine and fæces were passed unconsciously. The jaundice had increased in intensity. The child was very thirsty. Petechiæ now appeared on the front of the legs. The child cried very little, but moaned when disturbed; the tongue was covered with a dirty white fur. The patient remained maniacal all day, but during the evening became quieter and drowsy; the pupils were dilated and sluggish at 10 P.M.; the temperature was 100° F.; the pulse was 140 regular. During the night coma gradually set in, the petechiæ became more numerous, and the jaundice more intense. About 5 A.M. on the 24th the child vomited a quantity of blood and died shortly afterwards.

Although a post-mortem examination could not be obtained in this case, and there was no opportunity of examining the urine for leucin and tyrosin, the diagnosis of malignant jaundice or "acute yellow atrophy" seems amply justified. The case was in all respects clinically similar to two others I have seen in children aged two years and a half and six years respectively, where post-mortem examination proved complete destruction of the cellular liver structure. These cases I have reported elsewhere in some detail. In none of these cases was there evidence during life of any considerable diminution of the liver, and in at least one of those examined after death the liver was not below the average in weight. A practical lesson to be learnt from such cases is to be very guarded in the prognosis of all so-called and apparent cases of "simple" or "congestive" or "catarrhal" jaundice in children when the jaundice does not abate within a week, and still more when it increases.

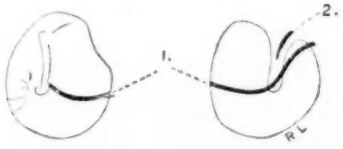
Harley-street, W.

ABNORMALITY OF THE CHORDA TYMPANI.

By RICHARD LAKE, F.R.C.S. ENG., L.R.C.P. LOND.,
PATHOLOGIST AND REGISTRAR TO THE THROAT HOSPITAL, GOLDEN-SQUARE, W.

FOR the chorda tympani to take an irregular course in its passage across the membrana tympani must be exceedingly rare, so I send drawings of the external and internal surfaces of the left membrane where the following abnormality occurred. The chorda made its exit at the usual level, but

FIG. 1. FIG. 2.



External surface. Internal surface.
1. Chorda tympani. 2. Insertion of tensor tympani.

instead of arching upwards it ran almost horizontally forwards to about the junction of the lowest fourth of the handle of the malleus with the remainder; it was clearly visible through the membrane from the meatus. On the inner side, after reaching the malleus, it runs upwards, passing off to leave the tympanus by the canal of Huguier, keeping below the tendon of the tensor tympani. I am inclined to think Fig. 5, Plate xi., in the "Atlas of Diseases of the Membrana Tympani" is a variation of this state of things.

Harley-street, W.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

MIDDLESEX HOSPITAL.

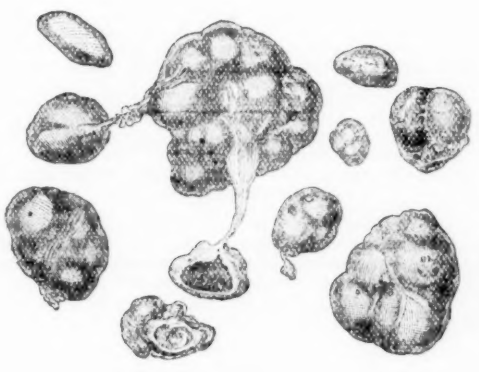
TWO CASES OF OPERATION FOR CYSTIC BRONCHOCELE; REMARKS.

(Under the care of Mr. HENRY MORRIS.)

THESE cases form a contribution of interest to the surgical treatment of cysts of the thyroid gland. The method of excision, or enucleation, is the one which surgeons usually prefer at the present time, and it yields very good results. We published a series of cases last year in the Mirror of Hospital Practice which had been under the care of Mr. C. J. Symonds and in which this method was employed with considerable success. The first of the two cases which follow shows how much may be done by enucleation. The multiple cysts were easily removed and nothing but healthy tissue was left.

CASE 1. *Multiple adenomata of the thyroid gland (cystic bronchocele); removal of seventeen cysts from the thyroid gland.* (For the notes of the case we are indebted to Mr. E. Griffin, the dresser.)—A young woman twenty-one years of age was sent to Mr. Henry Morris by Mr. Daglish of New Romney, Kent, suffering from a very unusual form of bronchocele. She was admitted into Helena Ward of the Middlesex Hospital on March 16th, 1894. She had enjoyed good health and her family history was good except that a sister was beginning to develop a bronchocele. The enlargement commenced about seven years ago, and was treated by the external application of iodine, but without effect, as the swelling continued to increase and her voice became weak. Between four and five years ago her neck became painful, and since then she had been subject to constant headache. She had never had any difficulty in swallowing or breathing; occasionally throbbing had been felt for two or three days continuously, and at these times she said the enlargement had increased and had been more painful. The patient, a short, thickset brunette with a waxen œdematous face much resembling myxœdema, had on admission a symmetrical enlargement in front of the neck having the general outline of the thyroid gland. There were no other signs beside the facial aspect at all suggestive of the myxœdematous state. The isthmus of the thyroid extended upwards above the lower border of the thyroid cartilage. The lateral lobes reached from the upper border of the thyroid cartilage downwards as low as the clavicle, and outwards beneath the sterno-mastoid muscles. In the isthmus, slightly to the right of the median line, there was a very hard movable tumour the size of a horse bean; it was painful and tender, and had attached to it by what felt like a cord a second somewhat smaller tumour. A third circumscribed mass connected with the isthmus, separated from the general enlargement, and situated above and behind the left sterno-clavicular joint, could be made out. It was about the size of a walnut, but was less movable and less free than the other two tumours of the isthmus. The enlarged lateral lobes had not a uniform consistence, but for the most part felt soft and were without fluctuation or thrill. The patient suffered much discomfort from the bronchocele, especially when lying down. Her most comfortable position was on her right side, with her head well turned towards the right. On laryngoscopic examination Mr. Leopold Hudson found both vocal cords in all respects normal except that the left was a little more sluggish in its movements than the right. This was probably caused by chronic inflammation of the mucous membrane covering the left arytenoid cartilage, an extension from chronic pharyngitis, of which traces still existed. The weakness of voice was probably due to the failure of the left vocal cord to approximate accurately to the right cord. On March 30th, the patient being anæsthetised, an incision was made near the middle line parallel with the border of the right sterno-mastoid; the skin was then reflected sufficiently to expose the right lobe and isthmus, and the tumours above described were removed. During the dissection several other tumours of varying sizes were detected in the right lobe and the isthmus, and were enucleated from amidst the glandular tissue. The tumour situated in the middle of the isthmus was calcified, and when removed was of the size and shape of an almond. A large tumour extending for some distance behind the sternum, the outline of which could not be felt before the operation, was also excised; it measured two inches in length, one inch across, and was partly calcified. The rest of the tumours removed varied in size from a pea to a large hazel nut, and were more or less rounded in outline. Thirteen in all were removed. (Fig. 1.) Several tumours in the left lobe could be easily made out, but it was thought better to defer their removal till another time in case the functions of the thyroid should be too far disturbed by further operation. There was not much bleeding during the operation, but several veins and one or two small arteries required ligation.

FIG. 1.



Shows the relative sizes of eleven of the tumours removed.

The microscopic examination of one of the tumours excised showed it to consist of an outer wall of fibrous tissue. At one part this wall was of considerable thickness and was infiltrated with small round cells. The interior of the cyst was composed of a number of spaces of various sizes, filled for the most part with a colloid material. These spaces were lined by cubical epithelium, and between them there was a small quantity of fibrous tissue; at one part there was extravasation of blood.

The after-course of the case needs no remark. A small drainage-tube was retained in the wound for thirty-six hours, and the dressings consisted of absorbent cotton-wool covered with a few layers of gauze. The patient made an uninterrupted recovery and left the hospital on April 17th, having been greatly relieved by the operation.

FIG. 2.

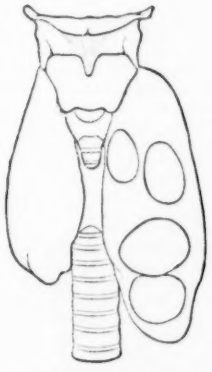


Diagram showing the relative positions of the tumours in the left lobe of the gland.

The patient was readmitted on Oct. 23rd for the purpose of having the cysts removed from the left lobe. She had much improved in general health and expressed herself as having been much better able to perform her duties as a domestic servant since the operation. There was no change in the appearance of her face, which remained œdematous and swollen-looking, though it was not really œdematous, did not pit on pressure, and did not vary in size. The right lobe and isthmus of the thyroid were normal in size, the cicatrix was pale and supple, and the left lobe of the thyroid appeared less than six months before. This lobe contained, however, a small mass, not prominent and rather ill defined, and apparently divided into two parts, each part about one-third of an inch in diameter. There was no pain or tenderness. The swellings were elastic and situated at some depth in the gland tissue. On Oct. 30th an incision was made over the left lobe nearly parallel with the edge of the left sterno-mastoid, and four cysts were removed from the left lobe. Two of the cysts occupied the lower part of the lobe and were close together; these were what had been felt through the skin. Two other cysts were detected during the operation; one was opposite the isthmus, and the other and smallest was situated somewhat higher. (Fig. 2.) This latter was reached by cutting through the posterior wall of

the cavity from which one of the other tumours had been removed, and it was found resting on the larynx and separated from it only by a slender layer of thyroid tissue. The lower part of the left lobe was transformed into a cavity bounded by a thin layer of gland tissue. Some venous hæmorrhage was arrested by forceps and hot sponges, and the edges of the wound were retained in position by silk sutures. Dry dressings and a figure-of-eight bandage were applied. She made an uninterrupted recovery and was discharged well on Nov. 13th. The tumours varied in size from a cob nut to a cherry, and were of the same general adenomatous character as those removed at the first operation.

CASE 2. *Large cystic bronchocele; excision of the cyst.* (For the notes of the case we are indebted to Mr. Black, the dresser.)—A young woman eighteen years of age was admitted to the Middlesex Hospital, under the care of Dr. Douglas Powell, on Oct. 13th, 1894. Her family history was good; a cousin had a "swelling in the neck." The patient had a slight attack of rheumatism in July last, and had suffered from biliousness, indigestion, and constipation. About three years ago she first noticed a swelling in the front of the neck, which grew in two years to the size it had attained when the patient was admitted into the hospital, and its growth had since been nearly stationary. The patient was subject to palpitation on taking exercise, and had felt pain on taking solid food. She was treated for a month in hospital for anæmia and constipation, and was much improved in both respects; she was then transferred to the surgical ward for operation. The thyroid gland was the seat of an oval-shaped elastic tumour the size and pretty well the shape of a large lemon situated to the left of the median line. The swelling was very elastic and pulsated. The overlying skin was natural and there was neither pain nor tenderness. On deglutition the tumour moved more laterally than vertically. There was no marked prominence of the eyeballs and Graefe's sign was not obtained. The pupils reacted to light. There was occasional dyspnœa, and for this reason as well as because of the unsightly appearance of the swelling the patient desired an operation. On Nov. 14th she was anæsthetised and a vertical incision about three and a half inches long was made in the middle line of the neck, extending to within half an inch of the sternum. The skin and cervical fascia were divided and the muscles drawn aside, when a large globular swelling of the thyroid presented itself through the wound. The capsule of the thyroid and a layer of glandular tissue were divided, and the outer wall of the cyst was then exposed. The complete enucleation of the cyst from within the substance of the gland was effected partly by a blunt raspatory, partly by the finger-nail, and in places, where the connexions were tough and fibrous, by the scalpel. Towards the end of the shelling-out process the cyst wall gave way and several drachms of nearly colourless colloid material escaped. The opening in the sac was closed by forci-pressure forceps. There was very little bleeding during the operation. When looking into the wound after the removal of the cyst nothing was seen but a very large recess or bag composed of the left lobe of the thyroid gland, the wall of which in the inner aspect was greyish and purplish in colour and tough and fibrous in texture. In places this wall was very thin, and the trachea and large cervical vessels could be so readily felt through the posterior part that during the operation it seemed that there was really nothing between the back of the tumour and these structures. Such, however, was not the case, as the cyst had a complete investment of thyroid capsule and gland tissue. The thin membranous sac of thyroid tissue was dropped back into the wound and a drainage-tube was inserted into the cavity in the thyroid. The muscles and fascia were then replaced in position and the skin wound closed by silk sutures. The cyst, when laid open, contained some adenoid tissue and a large quantity of mucoid fluid resembling black coffee mixed with coffee-grounds. It was accidentally thrown away before microscopic examination could be made of it. The patient was very sick from the anæsthetic for twenty-four hours, and there was an abundant discharge of thin colloid fluid for the first three days after the operation. On Nov. 17th the pulse rose to 110 and the temperature to 101° F., and she complained of headache. The drainage-tube had been discontinued, so several stitches were removed and the union of part of the wound broken down, when a few drachms of brownish venous-looking fluid and a little thin pus escaped. For the next two days the temperature was between 102·4° and 100·4°, then it fell, the discharge diminished, the wound healed, and she was discharged quite well on Dec. 19th last.

Remarks by Mr. HENRY MORRIS.—These cases show the advantage of the treatment by excision. A few years ago the first of the two would have been either left alone, or a part or a whole of the thyroid gland would have been excised; whereas the second case would have been treated either by incision and drainage, or by injection. It would have been impossible by any other means than enucleation to have dealt effectively with the multiple tumours in Case 1. To have excised part of the gland would only have attacked half or less of the disease, the tumours in the remaining portion would still have caused annoyance and deformity, nor would they have stopped growing. To have performed total thyroidectomy would have probably induced myxœdema; whilst to have attempted the destruction of the several tumours by incision and scraping—as has been proposed for some of the larger cysts—would have been tedious and dangerous, from hæmorrhage. Case 2 shows the advisability of dissecting immediately down upon the cyst capsule before attempting removal; by so doing the tumour can be excised without much hæmorrhage and without fear of wounding the recurrent laryngeal nerve, the trachea, pharynx, or œsophagus, or any of the vessels of the neck. There is next to no disturbance of the cellular tissue planes of the region, and the cavity which is left to be closed up is entirely in the substance of the thyroid itself. The wounds after these operations heal very readily, there is not the risk of the severe and dangerous suppuration which sometimes follows the injection treatment, nor is there the inconvenience of a prolonged fistulous opening with discharge going on for months or a year or two, as there has been after the incision and drainage treatment. Some of the serious consequences which have followed excision of large cysts of the thyroid would have been avoided had simply enucleation been adopted. It is a question how far the peculiar œdematous-looking face of the first patient was dependent on the impaired function of the gland owing to the extensive disease.

BRADFORD INFIRMARY.

CASE OF BULLET WOUND OF SMALL INTESTINE; LAPAROTOMY; RECOVERY; REMARKS.

(Under the care of Mr. W. LAKE ROBERTS.)

WITH regard to the subject of gunshot injuries of the abdomen we owe much to American surgeons, who have done a great deal to advance the treatment of bullet wounds of this region. We are not often called upon to treat a case like that recorded below, nor, indeed, are many to be found in surgical literature, the damage done by the bullet being unusually extensive. Early operation, careful suturing, asepsis, and the condition of the bowel are factors which probably conduced to a successful result. The question of interference in gunshot wounds of the abdomen is still discussed, but there is little or no doubt in the minds of those who are engaged in active work, and best able to judge, that operation should be performed. It has been doubted if there is one incontestable instance of recovery from bullet wound of the small intestine without operation; and of all penetrating gunshot wounds of the abdomen nearly 88 per cent. are fatal. There was, therefore, a strong reason for trying some more successful method of treatment, and cœliotomy with suture of any intestinal wound will often afford the best prospect of a good result. In 1889 Morton estimated the mortality after operation at 60 per cent.; but this estimate probably includes amongst the number cases in which peritonitis of septic nature was already present, also cases in which there was considerable shock and perhaps loss of blood to diminish the patient's chances of recovery. For the notes of this case we are indebted to Dr. Wood, house surgeon.

A short, slightly built man twenty-six years of age was admitted to the Bradford Infirmary on May 2nd, 1894, with the following history. The patient was struggling with another man in a public-house brawl when his opponent discharged a revolver, wounding him in the abdomen. On admission he was conscious, and there was only a small amount of collapse. The pulse was 88, increasing to 115 at the time of the operation. He complained of nausea. Half an inch below and to the left of the umbilicus was seen a small penetrating wound, the edges of which were bruised,

but not burnt or blackened by powder. There was slight external hæmorrhage. Ether having been administered (about four hours after the receipt of the injury), a vertical incision four inches long was made through the wound. As soon as the peritoneal cavity was opened a quantity of blood was seen; this was found to be coming chiefly from a wounded mesenteric vessel, which was secured and ligatured. No fæcal extravasation into the peritoneal cavity was found. The intestine was now carefully examined throughout its length, and was found to have been perforated in four places (making eight wounds); there were also three wounds of the mesentery. The wounds were distributed throughout the length of the small bowel. The perforations of the bowel wall were closed by fine silk Lembert's sutures, and the mesenteric wounds were also sutured. The bullet was discovered lodged against the wall of the bowel at its junction with the mesentery; it was cylindrical in shape, 7 mm. in diameter, and weighed 125 gr. The abdominal cavity was irrigated with hot boric acid solution and sponged out as dry as possible. The abdominal wound was closed by catgut sutures into the peritoneum and silkworm gut sutures passing through the whole thickness of the abdominal wall. A small drainage-tube was inserted superficially, but there was none into the peritoneal cavity. The operation lasted 125 minutes; at its close the patient was much collapsed. The pulse was 146. During the first three days after the operation the patient's condition was critical, much anxiety being caused by almost incessant bilious vomiting; this moderated on the fourth day and ceased on the fifth. The pulse-rate was then 74. There was never any distension of the abdomen, and the temperature at no time rose above 99·2°F. Nutrient enemata and suppositories were given regularly from the time of the operation until the eighteenth day, when feeding by the mouth was commenced. The bowels acted slightly on the third day and freely on the fourth day after administration of an enema. The wound in the abdominal wall suppurated, owing doubtless to the contusion, and was not healed until the twenty-eighth day. The bowels were at that time acting naturally every day, and the patient was allowed to get up. He was discharged cured on June 19th. He was seen two months subsequently to this and seemed to be quite well and was free from pain.

Remarks by Dr. WOOD.—There is one point about the case which is, I think, of considerable importance, and that is the empty condition of the bowels at the time the injury was received. The man had been drinking more or less all day, but had taken very little food, and there can be no doubt that this was an important factor in the successful issue of the case, as had the intestines been full of liquid material fæcal extravasation would almost inevitably have occurred, which would have greatly increased the gravity of the patient's condition.

EMSWORTH COTTAGE HOSPITAL.

CASE OF ANOREXIA NERVOSA; NECROPSY.

(Under the care of Mr. LOCKHART STEPHENS.)

MANY of our readers will recollect the case of this disease which was published in THE LANCET of March 17th, 1888, and the illustrations here given will recall one of those then depicted. The case to which we refer was one under the care of the late Sir W. Gull, and attracted much attention at the time. In a leading article we summed up the symptoms of the condition, and cannot do better than reproduce what is there written: "The patients are generally young girls from fourteen and upwards, though we have known a striking case at a much earlier age. The disease may, however, occur in males. The great feature of the cases is complete anorexia, leading to extreme emaciation, with slow pulse, subnormal temperature, and very few respirations. Strange to say, there is associated with these depressed functions a remarkable restlessness, a disposition to be moving or walking about, though the patient is an object of remark in the street. There is an entire absence of signs and symptoms of tuberculous or other organic disease." The disease does not often prove fatal; therefore, the following case, which by the way confirms our last remark, is of considerable importance.

A girl sixteen years of age was admitted to the Emsworth Cottage Hospital on March 10th, 1888, on account of extreme emaciation. On admission the patient was a tall intelligent girl of fair complexion and hair, with a somewhat sad expression, resembling strongly (as in Dr. Stephen Mackenzie's case[1]) the diabetic face. She was rather affected in her manner and at times almost childish in her conversation. Her limbs and body, if properly nourished, would have been well developed; the breasts alone took no share in the extreme wasting, but stood out in marked contrast. She weighed 56 lb. Repeated and careful examinations failed to detect any signs of disease in the thoracic or abdominal organs. The bowels acted every other day. The urine, sp. gr. 1018, was acid, without a trace of albumen, sugar, or other abnormal constituent. The teeth were good, the tongue was clean and red, the abdomen markedly retracted (there was no pain on manipulation), and the lips were fissured from a habit of constantly licking them with her tongue. Though there was no marked aversion to any particular kind of food she preferred sweets and dainties, but would not take more than a most minute portion at any time. Up to ten months previously to admission the patient had been a remarkably well-made, plump, and healthy-looking girl, full of spirits and eager to attract the notice of her friends, which she did to a considerable degree, becoming a favourite with her teachers and others. Gradually, and from no apparent cause, she showed a disinclination to take the same food and at the ordinary meal times as the rest of the family. This went on until she reached the very emaciated state in which she was on admission; but even then she persistently maintained that she was quite well and resented being placed under treatment. She was able to help her mother in her household duties, but preferred taking long walks when she had the opportunity, apparently without feeling fatigued even after walking long distances. Her father and mother were living and healthy, though the latter was very excitable and quite under the influence of the patient, who was the only girl out of six children and the spoilt child of the family.

Remarks by Mr. STEPHENS.—My first impression, before examining the urine, was that I had to deal with a case of diabetes, yet of this I was very doubtful, never having seen in diabetes, or in any other disease associated with wasting, so much physical strength in such an ill-nourished body. Finding no symptom but wasting, I came to the conclusion that the case was one of "voluntary starvation" in an otherwise healthy subject. I had not then read the late Sir William Gull's paper,[2] or his case recorded in THE LANCET of March 17th, 1888. As the girl was under no control whatever at home I advised her parents to allow her to come into the Cottage Hospital on the distinct understanding and promise that whatever treatment was thought necessary should be carried out. She was ordered to be kept in bed with her limbs and body bandaged in cotton wool, to be fed every four hours with peptonised food, and to do nothing in the way of exertion. At first no difficulty was experienced in managing her, but after a few days she resented all treatment, became sullen and fretful, crying out for her mother, who lived only a few doors from the hospital, the result of which was that her mother, in spite of advice to the contrary, persisted in seeing her every day. From this time she began to lose the little ground we had gained; she took very small quantities of food, and resorted to every conceivable trick to avoid swallowing it, although she would take it into her mouth. On April 1st she was able to get out of bed and walk round the room without difficulty. On the 2nd (6 A.M.) the nurse noticed that she was much weaker, and could only with difficulty swallow some egg-and-milk. At 8 A.M. she was rather brighter, but at 8·45 A.M. she became suddenly collapsed, and when visited a few minutes later her condition was as follows. She was in a position of extreme helplessness, the eyes were fixed, the pupils dilated and insensitive, and the conjunctivæ insensitive. The respiration was 12, the temperature 96° F., and the pulse 60, not being perceptible in the radials or the posterior tibials, and very feeble in the axillary and femoral arteries. The extremities were livid, cold, and clammy; the breath was cold and emitted a death-like odour. Hypodermic injections of brandy (fifteen minims) were given every ten minutes; hot flannels were applied to the epigastric region and hot bottles to the feet, hand, axillæ, and trunk were in turn applied. In about twenty minutes the pulse became stronger and could be felt at the wrists. No very marked improvement took

[1] THE LANCET, March 31st, 1888.
[2] Clinical Society's Transactions, vol. vii., p. 22.

place until 11 A.M., when in order to get more warmth (the extremities and trunk being now warm, but the breath cold) an œsophageal tube was passed and about ten ounces of milk as hot as could be borne in the mouth administered. Almost immediately the respiration became stronger and deeper, and shortly after she showed signs of consciousness, so that at 11.40 A.M. she was able to speak and to understand what was said to her. During the afternoon she

FIG. 1.

was able, unasked, to raise herself on her shoulders and heels to allow a drawsheet to be removed. Shortly after midnight it was noticed that the respiration was becoming more frequent and more shallow. This continued to increase, and sinking rapidly she died at 2.30 A.M. on April 3rd.

Necropsy, made at 10 a.m. on April 5th, fifty-six hours after death.—The body weighed 49 lb.; the height was 5 ft. 4 in. The circumference of the arm high up at the shoulder was 4¼ in.; circumference of the wrist, 4¼ in.; circumference of

FIG. 2.

the waist, 17 in.; circumference of thigh just below the great trochanter, 8 in.; circumference of the neck, 8½ in. The body was extremely emaciated; there was not a trace of fat in the subcutaneous tissue with the exception of the breasts, which stood out boldly. On opening the abdomen there were visible: the lower edge and anterior surface of the right lobe of the liver, measuring three inches and a half vertically; the anterior surface of the stomach for two-thirds of its extent, starting from the pyloric end, which was below the level of the umbilicus, so that the long axis of the organ was directed almost vertically downwards; three inches of transverse colon just above the pubes, in the great omentum. The bones of the head were thin, the membranes and vessels were normal, and the brain was normal throughout; it weighed 45½ oz. The right lung weighed 19 oz. (it was much congested from hypostasis). The left lung weighed 11½ oz.; it was less congested than the right. Both lungs were otherwise normal. The left pleural sac contained about ½ oz. of clear serum. The heart weighed 4 oz.; its external appearance was normal. Both auricles contained small decolourised clot. The left ventricle was firmly contracted; the right was thin and flaccid; the valves were healthy. The liver weighed 23½ oz.; it was normal in appearance. The gall-bladder contained one drachm of clear, thin bile. The pancreas (weight 1½ oz.), spleen (weight 1¼ oz.), adrenals (weight of each ¼ oz.), and kidneys (weight of right 3 oz., of left 2½ oz.) were all normal. The uterus and ovaries together weighed ⅝ oz.

Medical Societies.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Exhibition of Cases.—Raynaud's Disease.—Intestinal Obstruction.

A MEETING of this society was held on Dec. 19th, 1894, Dr. CLOUSTON, President, being in the chair.

Mr. CATHCART showed two patients illustrating Ulcerative Forms of Secondary Syphilis. He remarked that, although, according to Mr. Hutchinson, rupia was not confined to the tertiary period, it might be important, medico-legally, to note at what period ulcerative processes might occur. The first case, a lad, had acquired syphilis in July, had a well-developed sore in September, and in December had a most typical rupia, a cast of which was shown. The sores now showed deep ulceration in a healing stage. The hard sore had left no scar. The second case showed severe ulceration of the throat, though there was no history of alcoholism or evidence of specially weak constitution.—Dr. JOHN THOMSON showed a child with Congenital Absence of the Pectoral Muscles on the left side and deficient development of the left forearm.—Dr. W. ALLAN JAMIESON showed a case of Molluscum Contagiosum. On the left side of the face were several mollusca the size of a pea, and there was a patch behind the ear where the tumours had become aggregated. There was at the back of the knee a tumour which had originally been a wart, and had taken a molluscous growth. The case resembled some cases of Darier's disease.

Dr. URQUHART read a paper on two cases of Raynaud's Disease. The first case was that of a man thirty-three years of age with a very rheumatic history. There was no history of syphilis, but for some years previously he had been addicted to intemperance. Some months previously to coming under Dr. Urquhart's care he had had a severe attack of enteritis, after which the mental condition deteriorated. He had very severe headaches, loss of memory, and general mental weakness. The enteritis recurred, and as delusions supervened he was put under Dr. Urquhart's charge in the Perth Asylum. He was then found to be anæmic and constipated. The reflexes were normal except the pupils, which were sluggish. He was very taciturn; when he did speak his utterances were foolish. There was considerable excitement, with resistance. He had delusions. Hæmatoma auris developed. Nourishment was taken badly. Shortly after admission the feet became black up to the ankle, hebetude became marked, and retention of urine developed. The feet improved slightly for a time, but never lost the dusky colour. The improvement only lasted for a short time, when the colour deepened and the features became pinched. No pulsation could be made out in the posterior tibial arteries. Shortly afterwards the patient died. Post mortem the lungs were found congested, with cavity formation at the apices. The right kidney was found to be normal; the left was tuberculous. The brain convolutions were atrophied. The ventricle contained a large amount of fluid. In the feet the vessels of the skin were engorged and in a condition of stasis. There was no neuritis present. The

bone marrow showed diapedesis. The anterior and posterior tibial arteries and nerves were normal. The medulla and pons were normal. There was not the interstitial change in the affected parts found in ordinary gangrene. The second case was that of a woman who had influenza in 1892, after which she became melancholic. As she became subject to delusions she was sent to the asylum. From February, 1892, the mental condition remained much the same. There was retention of urine from time to time, with a transient albuminuria. She developed hæmatoma auris. She was very sensitive to cold. Some time after this the feet became swollen and blue. Patches of a brown colour appeared, and the colour of the feet deepened. The skin roughened and began to peel off. After three months' confinement to bed she began to improve and was able to get up, but in a fortnight the blueness recurred. This had happened several times since. Dr. Urquhart thought in those two cases the malady was central in origin. Both had hæmatoma. Neuritis had been found in some cases, but seemed to be more a complication than an essential factor in the disease. The nerve should be examined above and not at the point where it was implicated in the diseased part.—Mr. JOSEPH BELL said that the paper had been very instructive as an interesting clinical study, but he was no wiser as regarded the question of amputation. He thought from a surgical point of view masterly inactivity was the proper treatment.—Mr. CATHCART did not think it possible to exclude vascular obstruction in the first case simply because the tibial arteries were not affected. He had often examined legs showing gangrene low down in the foot, and had found the seat of obstruction at the bifurcation of the popliteal artery.—Dr. BRUCE had examined one case where the toes were amputated for gangrene. There was distinct closure of the arteries, the intima being united, leaving only a longitudinal cicatrix. He quite agreed that neuritis might be the result and not the cause of the disease. He did not think they had yet found a cause adequate to account for the chronicity of the disease.—Mr. ALEXIS THOMSON said in one case he examined he did not think the neuritis could be secondary, though he did not say it was the primary cause. In a second case he had found very little evidence of neuritis. Amputation should only be done to rid the patient of dead tissue.—Dr. Urquhart replied.

Dr. JAMES RITCHIE read a paper on a case of Intestinal Obstruction. The patient had been first seen on Sept. 18th, when he was suffering from diarrhœa and vomiting. The tongue was thickly coated, there was troublesome flatulence, and the abdomen was somewhat distended. Under treatment the sickness and diarrhœa ceased and the appetite returned. At the commencement of the following week there was a return of the gastric catarrh and the bowels became constipated. Some improvement took place, but on the 29th severe hæmatemesis with some fever came on. Efforts were made to empty the bowels, but without effect, and the abdomen became distended. The case being viewed as one of a septic condition of the bowels, with consequent paresis of the intestinal walls, salol and purgatives were given. On Oct. 4th there were several copious pultaceous motions, and the condition improved. Soon, however, the epigastrium became prominent from distension, and a small movable nodule was palpable to the left of the umbilicus. The bowels were again constipated, and inspection revealed peristaltic movements of the bowels. Obstruction due to a malignant tumour was diagnosed. The rectum revealed ballooning, but no tumour or tenderness. Fully three pints of water could be injected; therefore probably the obstruction was not at the sigmoid. From Oct. 4th no satisfactory motion was obtained and the general condition deteriorated. On the 27th Mr. Chiene saw the patient, and decided to operate on the following day if no improvement took place. During the day the patient became suddenly worse and died from heart failure. Post mortem a flattish mass about the size of a dried fig was found in the great omentum to the left of the middle line. The ascending and transverse colon was much distended. At the splenic flexure there was a hard mass, which completely encircled the gut and caused great narrowing of its lumen. Dr. Ritchie then reviewed the literature and interesting features of the case, and advised the use of intestinal antisepsis, combined with enemata, in cases of chronic obstruction.—Mr. JOSEPH BELL said he had met a somewhat similar case last week. A woman between sixty and seventy presented symptoms of chronic obstruction. There was no trace of anything per rectum, except ballooning. The lower bowel daily admitted three or four pints. She never had vomiting. Three weeks before death she passed what she stated was an excellent, large, firm stool, about which, however, he had some doubt. The abdomen was distended, the colon being visible. Flatus was easily passed, and fæcal matter, but not in large quantity. On opening the abdomen no tumour could be felt at the sigmoid, but at the cæcum a very strong band binding it down completely was discovered. This was divided. Great relief followed, but the transverse colon did not quite empty itself. He advised an artificial anus, but the friends objected. After operation flatus was easily passed, but no large stool. The patient died suddenly from heart failure. Post mortem they found a small, tight, cancerous stricture in the sigmoid flexure, which Dr. Boyd reported to be a slowly growing carcinoma with colloid degeneration.—Mr. HODSDON said he had had a very similar case on the previous Friday. The difficulty always was to find the point of obstruction in order to know where to open. He opened on the left side and found a very small stricture. He was led to open on the left side from distension of the intestine and the smallness of the enema which could be admitted. He thought that in chronic obstruction in old people an artificial anus should always be made. It did not cause much inconvenience. He had one patient where this was done who was now working as a labourer.—Dr. RITCHIE replied.

Reviews and Notices of Books.

Clinical Lectures and Essays on Rickets, Tuberculosis, Abdominal Tumours, and Other Subjects. By Sir WILLIAM JENNER, Bart., G.C.B. London: Rivington, Percival, and Co. 1895.

THERE is no doubt that this volume of Sir William Jenner's collected writings will be as heartily welcomed as was the republication last year of his memorable essays upon Fever and Diphtheria, and many will feel indebted to him for the opportunity of possessing them in a permanent form; indeed, we question whether there are many now in practice who have ever read those masterly lectures upon Rickets which appeared in the columns of the *Medical Times and Gazette* thirty-five years ago and are now for the first time reprinted. The same applies to the lectures on Tuberculosis which follow. These two courses of lectures were delivered in the Hospital for Sick Children, Great Ormond-street, and although a generation has passed since their delivery they are still full of instruction, for they were the product of a keenly observant mind and are stamped with the individuality of their distinguished author. The lectures on Rickets stand out pre-eminently as the foremost contribution to our knowledge of this common disease. To Sir William Jenner must be accorded the great merit of clearly seeing the truth that this disease was, as he puts it, "no more a disease of the bones than is typhoid fever a disease of the intestines." He established it as one of the four diatheses to which infantile life is prone, and at the outset of his lectures concisely contrasts the leading characteristics of these four—tuberculosis, scrofulosis, rickets, and syphilis. In reprinting the lecture he has adhered to the distinctions laid down in the text: they were differences which for him were definite and unalterable, types of morbid conditions which could never be confounded. Therefore it is that he says in the brief prefatory words to this volume: "I have not altered the paragraphs relating to the difference between scrofula and tuberculosis. For although recent histological researches have shown the identity of their ultimate pathological products, yet I still hold that the constitutional states which precede the local manifestations are of a different type in these two disorders and deserve separate consideration." Nor does this retention of conceptions which have been to a certain extent swept aside by the pathological investigations of these latter days in any way detract from the value of his testimony. For the fidelity of

his descriptions must remain, and although we can no longer say, as he did, that "syphilis and tuberculosis are undoubtedly not identical because syphilis owes its origin to a specific cause and tuberculosis does not" (p. 8), yet we must all recognise the clinical and pathological distinctions which are here so tersely given. Coming now to the main substance of these lectures on Rickets, the reader cannot fail to be struck with the care and accuracy with which the various morbid states inherent to it are described — the skeletal lesions and the deformities to which they give rise, the stress laid upon the effect of pressure as a potent factor in the production of limb and thoracic deformity, and many other points that are dealt with in strictly scientific method. Sir William Jenner assigns considerable importance to the condition which he terms "albuminoid infiltration" of the viscera, notably the spleen, liver, and lymphatic glands, in this disease. This term, which unfortunately was at one time used synonymously with the totally different condition of amyloid infiltration, has fallen into disuse and in current writings we hear but little of it. Yet that there is enlargement of these organs in rickets, and that it is probably associated with the concomitant anæmia, is undisputed. We could fain wish that histologists would tell us whether the state of the organs in question is more appropriately denominated a hyperplasia than an infiltration, but we are not aware that they have done so. In clinical description there is little in literature to equal that which is given in the lectures on Rickets. What, for instance, can match the following as a piece of word-painting thoroughly true to nature :—

"A child in health delights in movements of every kind. It joys to exercise every muscle. Strip a child of a few months old and see how it throws its limbs in every direction ; it will raise its head from the place on which it lies, coil itself round, and grasping a foot with both hands thrust it into its mouth as far as possible, as though the great object of its existence at that moment was to turn itself inside out. The child suffering severely from the general cachexia which precedes and accompanies the progressive stage of the bone disease ceases its gambols, it lies with outstretched limbs as quietly as possible, for voluntary movements produce pain. Its unwillingness to be moved is so great that, as Stiebel has observed, it will cry at the approach of those who have been accustomed to dance it, of those at the sight of whom it previously manifested extreme pleasure. As the disease progresses the child gets a peculiar staid and steady appearance ; its natural lively expression is replaced by a pensive, aged, languid aspect ; its face grows broad and square ; and when placed upright on its mother's arm it sits, as she says, 'all of a heap.' Its spine bends and its muscles are too weak to keep it erect. Its head seems to sink between its shoulders ; its face is turned a little upwards. ..... And now the consequences of the bone disease are superadded to the general derangement. It is strange to see a little child sitting placidly on the bed without moving for hours together, its legs placed so as to escape pressure, its spine bowed, its head thrown backwards, the chief weight of its body cast upon its anus ; and to know that, notwithstanding the apparent calm, the tiny thing is indeed fighting the battle of life, for it is striving with all the energy it has to keep in constant action every one of its muscles of inspiration, endeavouring so to supply the mechanical defects of its respiratory apparatus due to the softening of the ribs. It wants no toys. It is the best of children if you only leave it alone ; move it and you inflict pain on its tender frame ; show it the horse or the doll that was once its delight and it turns away its head or stares vacantly ; to notice would divert its attention too much from the performance of those respiratory movements which are essential to its existence" (pp. 37-39).

It is when reading passages like these—and there are many such within the covers of this book—that we appreciate the author's keen powers of observation and also his power of imparting to others what he himself observed. We can understand the better his unique aptitude for clinical teaching, and the enthusiasm, akin to reverence, with which those who were privileged to be his pupils recall the instruction he gave by the bedside. It makes us regret all the more keenly that owing to the imperious demands of practice he should have given us comparatively so little in published form.

The two lectures on Tuberculosis complement those on Rickets and convey the like impression of the author's characteristics. The first lecture opens with a warning against making a specialty of the diseases of children and drives home the lesson by a happy comparison between infancy and age as regards their respective tendencies to morbid lesions. Then follows a striking description of the physiognomy and build of the child who is the subject of inherited tuberculosis, much stress being laid on its small lung capacity. The type is as familiar to-day, when doubts are freely held whether tuberculosis is really inherited *per se*, as it was when these descriptions were penned by one who held that "the germ anterior to the formation of the blood, and even before it has divided into parts, is the subject of tuberculosis" (p. 75). After all, the problem of heredity, and the transmission of a special conformation of body, is unaffected by the alterations in the standpoint of thought as to disease : it is merely a change of idea as to the transmission of the disease itself or, rather, of the proclivity to it. The lecture then goes on to describe the various forms under which acute general tuberculosis affects the child. These forms are enumerated as : (1) the insidious, (2) the active febrile, and (3) the adynamic. The statement that acute tuberculosis is not a necessarily fatal disease, but that "recovery from it is very common," is justified by an appeal to the facts of observation in the post-mortem room, where old obsolescent tubercle is so frequently found side by side with recent lesions. The second lecture deals with tuberculosis of lymphatic glands, especially mesenteric and bronchial. A quotation will best convey the position assumed on this subject, which involves the vexed question of the nature of scrofula :—

"There are some great facts I desire by all this to impress on the mind of the youngest of my hearers—viz. : 1. That primary inflammation of the lymphatic glands is a very rare disease, even in scrofulous children. 2. That secondary inflammation of the superficial lymphatic glands is a very common disease. 3. That a superficial lymphatic gland being in a state of active congestion, by seeking out and treating the primary lesion, we can in all but every case prevent the occurrence of suppuration of the gland. 4. That when a superficial lymphatic gland inflames and suppurates without there being inflammation of the tissues from which the lymphatics to the gland lead, in almost all, if not in all, cases the gland so inflaming is the seat of the deposit of tubercle. 5. That the lymphatic glands of scrofulous children, and glands which contain tubercle, inflame and suppurate from an amount of irritation which would merely lead to moderate active congestion of the glands in a child of healthy constitution" (p. 91).

The volume also contains the article upon Emphysema of the Lungs which Sir William Jenner contributed to "Reynolds' System of Medicine," an article which is notable for the remarkable clearness of exposition and the force of its argument in support of the expiratory theory of the production of the condition. His paper in which he first set forth this doctrine before the Royal Medical and Chirurgical Society is also given. Many will turn to the lectures upon Extra-pelvic Tumours of the Abdomen in anticipation of most valuable clinical instruction. Nor will they be disappointed. These lectures, delivered at University College Hospital, were reported at the time of delivery by Dr. Gowers and afford a good example of Sir William Jenner's teaching. They do not cover the whole ground of abdominal tumours, but they are full of acute remarks which are of real practical value. We cannot refrain from another quotation, in which, in introducing the subject to his class, he

speaks of the aims and methods of clinical teaching. It runs as follows :—

"Now, clinical teaching should enable the student to start from a higher point of experience than he could attain by his unaided powers. The knowledge which the teacher has acquired by the practice of his profession should be to a considerable extent imparted to the scholar. The clinical scholar should be taught by his master to see with his eyes, to touch with his hands, to hear with his ears, to reason with his brain ; he should, in fact, be put into possession of that practical knowledge which in long time the master has acquired for himself, and should be by his master's aid possessed of the method by which practical conclusions from facts observed are to be drawn. At the end of his pupil career, then, you will see, the clinical scholar should start from a vantage ground, and not only should he start from the practical position his teacher has gained, but should also have been trained to use his senses so as to gather real facts for himself, and to use his reason so as to draw sound conclusions, to make every case which he subsequently sees add to his real practical knowledge. When he attends a case, even though it be of the commonest disease, he not only sees the case, but he learns something, adds something to his experiences" (p. 216).

In addition to the subjects already mentioned the volume contains papers and extracts from clinical lectures on such matters as Deformities of the Chest, Hysterical Laryngitis, Congestion of the Heart, Sarcina Ventriculi, and the observations on "Burnt to Death" which Sir W. Jenner a few years since contributed to the columns of THE LANCET. The book is dedicated to his old pupils, and they will indeed appreciate its publication. But the profession at large will be glad to have for perusal the writings of one who in his day did so much to advance the science of medicine and to uphold the purity of its practice. It may truthfully be said that in his retirement he bears with him the enduring esteem and gratitude of the large body of men who have profited by his teachings and example.

Fibroid Diseases of the Lung, including Fibroid Phthisis. By Sir ANDREW CLARK, Bart., M.D., LL.D., F.R.S. ; W. G. HADLEY, M.D. Durh., M.R.C.P. ; and ARNOLD CHAPLIN, M.D. Cantab., M.R.C.P. London : Charles Griffin and Co. 1894.

ONE of the most striking characteristics of the lamented physician whose name stands first on the title-page of this volume was the enthusiasm with which he adopted and the fervour with which he upheld doctrines that seemed to him to be right. It is somewhat difficult now, when, alas, we have him no longer with us, to realise the stir that was made in pathological circles by his enunciation of belief in "fibroid phthisis" as a substantive disease of the lung, having a definite etiology and course distinct from chronic phthisis of tuberculous origin, with which occasionally the former was intermingled. It seems strange that the question should have been so ardently discussed, and that in a matter of this sort there should have been so much room for differences of opinion. In a sense the use of the term "phthisis" was the pivot around which controversy raged ; but there can be no doubt that it was largely due to the fervid nature of Sir Andrew Clark himself that the question was raised out of the common level of dry pathological fact. We believe it was on the occasion of his paper on the subject, read at the Clinical Society in 1868, that the controversy in question attained its full development. That paper is reproduced in the present volume, and, reading it anew, we cannot but be impressed by the clinical and pathological zeal of its author and his absolute freedom from the current tendency of the day towards the restriction of the term "phthisis" to tuberculous disease alone. Thus he wrote: "It is plain, then, from what has been said, that to employ the term 'tubercle' in a 'comprehensive sense'—that is, in a sense depriving it of any definite meaning, and to maintain, as so many distinguished persons still strive to do, the unity of phthisis, is to reject the most precious results of pathological research, to ignore the distinctions established by clinical inquiry, to relinquish the hope of a rational therapeutic, and to resign oneself for ever to the guidance of a blind and capricious empiricism."

And a few lines further on he thus justifies his adoption of the term "fibroid phthisis" : "In this term the author proposes to embrace all these cases, whether local or constitutional, which are anatomically characterised by the presence, in a contracted and indurated lung traversed by more or less dilated bronchi, of fibroid tissue, and of a tough fibrogenous substance, together with cheesy deposits or consolidations, and usually small cavities commonly found about the middle and lower parts of the affected organ. Several objections may be justly made to the designation proposed ; but in the writer's mind they are all outweighed by this great advantage. The name expresses the leading anatomical fact of the disease, and whilst theories of its nature will change the structural character must remain always the same."

We venture to call attention to these earlier statements of Sir Andrew Clark, if only to show, as the publication of the present volume proves, that he never swerved from the doctrine there laid down. The changed light with which, owing to Koch's discovery, tuberculous disease came to be regarded served only to bring out in stronger relief the characters of the morbid pulmonary conditions which Sir Andrew Clark included under "fibroid phthisis." He had, we believe, for long entertained the hope of bringing to the notice of the profession the substance of his observations on this subject ; and the lines of the present volume, in the preparation of which he was aided by his former pupils, Drs. Hadley and Chaplin, were planned some time before his death. It comes now as a kind of legacy to the medical world, embodying the mature conclusions of a gifted mind upon a much debated matter. The historical review with which the volume opens gives with admirable precision the opinions and researches of leading authorities from the time of Bayle ; and it is at once a tribute to that pioneer in pulmonary pathology, as well as an instance of the tendency in pathological ideas to come round again to original ideas, that the unity of phthisis is still disputed. And if the term "phthisis" is to be retained in the sense in which Bayle used it there can be no question that Sir Andrew Clark was right, both in logic and in fact, in insisting on the inclusion of other than tuberculous disintegration under that term. Often has he impressed this on his friends and pupils, and the words in which he here defines the term have a familiar sound, recalling vividly the personality of their writer. "By this term," he says, "is meant the assemblage, progression, and relation of signs and symptoms, associated with, or dependent upon, the ulcerative or suppurative disintegration of more or less circumscribed non-malignant consolidation of the lungs" (p. 32). This sentence occurs in Chapter II., "On the term 'Fibroid Phthisis,'" in which is to be found an instructive contrast between the larger group of cases of tuberculous phthisis and the smaller group of fibroid phthisis. Chapter III. deals with the pathological anatomy of the subject, and here it may be remarked that the full and ample descriptions of the gross morbid appearances and histological characters of pulmonary fibrosis have an especial value. They demonstrate the fact that "fibroid disease of the lungs," which to our thinking is a far more appropriate term than "fibroid phthisis," may be met with in various degrees and in varying distribution within the lung itself. Commonly unilateral, it may in certain cases—e.g., those due to dust inhalation—be bilateral ; often associated with extensive pleural thickening, there yet are cases in which the pleura is comparatively unchanged ; sometimes nodular, and then most simulating "obsolescent tubercle," the lesion is more frequently diffuse ; whilst it may have caseous masses, and vomicæ resulting from their softening, which are to be distinguished from the deposits of tuberculous

origin. Lastly, bronchiectasis—which, according to the type of the disease, may lead to cavity formation, or be limited to cylindrical enlargement—is a very constant concomitant. It seems to us that the clue to these varieties in scope and character of lesion is to be found in the etiological factors, which are enumerated at the commencement of the next chapter, dealing with the clinical features of fibroid disease. And, further, if criticism be permissible, it would be to the effect that it would have conduced to definite and clear notions of "fibroid disease" had the pathological description—so far as this is possible—been treated under the several heads of these etiological factors. To instance only a few examples. The fibroid lung resulting from broncho-pneumonia (averred to be the most common antecedent) is different in many particulars from the rarer state of fibrosis supervening upon lobar pneumonia; and that, again, from the general fibrosis of chronic bronchitis, or of dust inhalation, or the more limited "pleurogenic" varieties. Their common element of interstitial induration is the only link which binds these various states together pathologically, whilst it may even be questioned whether clinically it is not possible to differentiate many of these forms. This, however, by the way, and with no desire to lessen the value of the masterly clinical picture that is sketched in these pages. It is a description that will bear repeated perusal, for without being redundant it brings out the salient features of the case and of its course in a succinct and at the same time striking manner. The chapter closes with an account of some cases in illustration of the clinical description.

The authors by no means ignore the association of tuberculosis with fibroid disease; but they do not enter into much detail in this part of the subject, which is really that of chronic tuberculous phthisis. In the fifth chapter two varieties are described—the one termed "tuberculo-fibroid," implying that tuberculosis has undergone fibroid transformation—the most hopeful form of chronic phthisis; and the "fibro-tubercular," in which tuberculosis secondarily involves a lung already fibroid. The frequency with which in the post-mortem room old fibroid change, sometimes of considerable extent, is encountered side by side with more recent caseating or miliary tubercle makes it difficult to be certain that the latter group is really different from the former. If in the one case the fibrous transformation or obsolescence of tubercle is conceded, why not also in the other? The authors, however, lay stress on the fact that the earlier history of the fibro-tuberculous group is that of a chronic affection; indeed, that of "pure fibroid disease," to which suddenly the signs and symptoms of a rapidly advancing tuberculosis are superadded. The few pages devoted to treatment, which also form part of the fifth chapter, are perhaps the least satisfactory—or rather satisfying—part of the book; but, seeing that the main purpose of the work was rather the description of the natural history of fibroid disease of the lung, the question of treatment may have been intentionally assigned a subordinate place. Chapter VI. is devoted to an analysis of cases, and in the final chapter is reproduced Sir Andrew Clark's paper read at the Clinical Society to which we have above referred.

It should be added that the volume contains several striking coloured drawings of specimens of fibroid disease (three of which have been published in THE LANCET[1]), drawings which are artistic as well as extremely faithful representations of the lesions described. Their value would have been enhanced by more direct reference to them being made in the text. Lastly, the book, as regards type and paper, has been produced in a style which we are accustomed to meet with at the hands of the publishing firm that is responsible for them.

[1] THE LANCET, July 2nd, 1892; Jan. 7th, 1893; and Jan. 6th, 1894.

The Prevention of Epidemics and the Construction and Management of Isolation Hospitals. By ROGER MCNEILL, M.D. Edin., D.P.H. Camb., Medical Health Officer for the County of Argyll, formerly Resident Medical Officer to the Infectious Hospitals of the Metropolitan Asylums Board at Homertom and Deptford, London, and H.M.S. *Atlas* and *Endymion*, Greenwich. London: J. & A. Churchill. 1894.

IN commencing our notice of this volume we may say at once that we have formed a very definite opinion in regard to it. It is a good and useful work. Dr. McNeill possesses, in the first place, the necessary knowledge and experience to make what he has to say well worth reading; and, in the second place, he has succeeded in expressing himself clearly and to the point on various subjects, to the consideration of which he has evidently given a good deal of thoughtful care. There is no need to dwell upon the loss and misery that infectious diseases so frequently entail, or upon the importance of the measures that should be adopted to prevent or limit the spread of them. All are theoretically agreed, at any rate, in this respect, but practically all do not realise how necessary it is that we should possess clear notions in regard to the nature of the preventive measures that should be adopted and promptly carried out if our attempts in this direction are to be really effective and not unavailing. It is obvious that our efforts should, as far as possible, be concentrated on the initial stages of such diseases while their manifestations are still limited to a few individuals, and before the infection has had time to spread and give rise to an epidemic. It is easy enough to provide for the accommodation of a small number of patients at the very commencement of a threatened outbreak, but it is often difficult, or even hopeless, to attempt to do so for the larger numbers affected in an epidemic. The author is right in saying that the importance of preventive measures has not been sufficiently practically realised in many small towns and rural districts, and it is easy to understand why this should be so. In the principal towns every endeavour has been, or is being, made to cope with the problem as a recognised measure of public safety. But the less populous are only feeders of the more populous centres, and the prevalence of any infectious diseases in the one necessarily endangers the other. Epidemics of disease which spread solely by infection do not cover the whole area of a province or community in their incidence. They begin in one district and spread slowly or otherwise in various directions, or each little centre acts as so many separate foci or depôts of infection to the rest of the community.

The book consists of nine chapters, with an appendix of hospital plans and accompanying descriptions and index. The illustrations are very good, and the relative merits of the various plans may be compared and considered with much advantage by the reader. It is impossible, within the compass of a review, to deal with all the subjects included in Dr. McNeill's book, and we must therefore content ourselves with a few of the more salient and practical points.

Passing over the first three chapters dealing with the dissemination of infectious diseases and the influence of effective measures against their spread, we come to the chapter which treats of the nature of infection and its influence on the construction and management of isolation hospitals. The antiseptic method has been singularly successful on the surgical side of our hospitals in preventing the occurrence of infective wound diseases, but there is no similar specific method of preventing the micro-organisms of the ordinary infectious diseases from entering the system by the breath or by food or water. It is all the more necessary, therefore, that isolation hospitals should be so constructed, furnished, and managed as to prevent the retention or absorption of any micro-organisms of infection,

and afford at the same time ample superficial and cubic space with a plentiful supply of fresh air. In large towns it has been stated that about one bed per 1000 of the population is a sufficient provision for the isolation of infectious disease to meet ordinary emergencies; but each case must, after all, be considered on its merits, for the number of beds necessary varies in different localities and under different circumstances, and the same may be said as regards the position of the hospital. The distance that patients suffering from infectious diseases may be safely conveyed is a matter to be considered, and the results of experience are well set forth and summarised in the work under review. According to our observation cases of enteric fever are likely to be prejudicially affected by being transported long distances unless their removal can be undertaken at an early stage. The feeling of the population may also be fairly considered to a certain extent in settling the distance patients are to be conveyed to a hospital. The site of a hospital as regards a safe distance from other buildings and thoroughfares in view of guarding against infection may be inferred from the experience gained in the case of various isolation hospitals. There is really very little risk of infection from well-constructed and thoroughly well-managed hospitals. If we exclude small-pox, the rule of the medical department of the Local Government Board may be followed—viz., that no part of the isolation hospital should be nearer than forty feet at least of the area wall. Here, again, local circumstances and the discipline, internal economy, and management of the hospital are important points. In rural districts where land is plentiful and comparatively cheap the site and the area to be occupied by the hospital may be fairly settled by considerations that would not apply to a town. But we may safely say that there is no necessity, from a purely sanitary standpoint, for the erection of isolation hospitals at such long and inconvenient distances from habitations as is frequently the case. Even in the case of small-pox some think that the spread of the disease is in proportion to facilities of communication rather than to an aerial distribution of the infection. It is unquestionably safer, however, to act on the latter assumption. It is obviously important in connexion with these institutions that, if isolation hospitals are of any size, a probationary room or ward should be provided for the reception of cases under observation until the nature of their disease is established. There are a considerable number of other points of interest which we must pass over. As regards the system of drainage, we quite concur in thinking that all the drains should be subjected to the water test, and the contractor should be clearly told that he will be held responsible for any leakage discovered. As regards the provision of connecting covered corridors between the different blocks for the protection of nurses and others against the effects of weather and wet, it may be said that theoretically the separate blocks should be entirely disconnected, and at Glasgow the nurses are provided with overcoats to protect them against the weather. We imagine that practically, however, covered corridors are commonly provided. Some of the plans in the appendix are, as we have said, very good, and they are all very useful for reference.

NEW OVERLAND ROUTE TO THE ORIENT.—An important addition to the routes to Constantinople and Egypt has been made this week. The International Sleeping Car Company has concluded arrangements with the various Continental railway companies and the Administration des Paquebots Poste Khédivie, by which, on Sunday, Jan. 6th, and every following Sunday, a special *service de luxe* will be run through from Ostend to Constantinople without change of carriage. There the passengers will at once go on board the mail steamer, which will leave immediately and go straight to Alexandria.

Analytical Records
FROM
THE LANCET LABORATORY.

(1) BISMUTH SALICYLATE. (2) EASTON'S SYRUP. (3) PEPSIN, BISMUTH, AND CHARCOAL TABLOIDS.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, E.C.)

EVER endeavouring to keep pace with the requirements of medicine as it advances, Messrs. Burroughs, Wellcome, and Co. have recently added some new useful tabloids to their already well-stocked list, specimens of which we have lately examined. The bismuth salicylate tabloid contains 5 grains of the bismuth salt, guaranteed physiologically pure, the dose ranging from one to four tabloids, which is equivalent to from 5 to 20 grains. Their convenience is evident, since bismuth salicylate is insoluble in water or spirit. This drug has been used with benefit (which may be referred to its astringent and anti-fermentative properties) in various forms of diarrhœa due to typhoid fever and pulmonary and intestinal tuberculosis. Easton's syrup tabloids, each equal to one fluid drachm of the syrup, will be accepted at once as a very convenient form in which to administer this excellent tonic. Lastly, the value and convenience of the tabloids of pepsin, bismuth, and charcoal will be obvious to every practitioner. We have submitted all the foregoing tabloids to qualitative analysis, with the result that evidence was obtained in every case that the drugs indicated were contained in them.

BREAD MADE FROM GERM MALT FLOUR.

(W. MARSHALL AND SONS, VICTORIA AND HAVEN MILLS, GREAT GRIMSBY, AND 39, HAMFRITH-ROAD, STRATFORD, ESSEX.)

This is an excellent specimen of malted bread made with the wheat germ, by the use of both of which not only is the proportion of food constituents very materially increased, but they are rendered also all the more digestible. It possesses a pleasant, though somewhat sweet, nutty flavour, and has the distinctly advantageous quality of keeping moist for a reasonable time. Its excellent dietetic properties are well brought out in the following analysis: moisture, 48·00 per cent.; albuminoids, 9·34 per cent.; mineral matter, 1·16 per cent. (of which 1 per cent. is soluble); soluble matters, 10·44 per cent.; unaltered starch, 31·06 per cent. Thus no less than one-fifth part of the solid matter is soluble in water, and is found to contain a valuable quantity of phosphates, while over one-sixth consists of nitrogenous (so-called flesh-forming) substances. A comparison of this bread with ordinary household bread shows at once its superiority in regard to nutritive and digestive value. The biscuits and cake also submitted are made on similar lines. We observe with considerable satisfaction the attention which is now almost universally being bestowed upon the improvement of the commonest, yet most important, article of our daily food. The above specimen, amongst others we have previously reported, fully justifies this remark.

OLD SCOTCH WHISKIES (NOS. 1 AND 2).

(STODDART AND CO., 20, SUFFOLK-STREET, PALL MALL, S.W.)

Two specimens of whisky submitted by the above firm were characterised by a low proportion of extractives and a comparative freedom from acidity. Analysis gave the following results. No. 1: alcohol by weight 35·00 per cent., by volume 41·84 per cent., being equal to proof spirit 73·33 per cent.; acidity reckoned as acetic acid, 0·004 per cent.; extractives, 0·13 per cent.; ash, 0·04 per cent. No. 2: alcohol by weight 42·00 per cent., by volume 49·50 per cent, being equal to proof spirit, 86·75 per cent.; acidity reckoned as acetic acid, 0·006 per cent.; extractives, 0·130 per cent.; ash, 0·04 per cent. No. 2 is, therefore, superior in regard to its spirit contents; but No. 1 is the maturer specimen (twelve

years), as No. 2 is stated to be seven years old. The impression that both samples convey to the palate is that they are moderately mellow, but both are evidently free from those by-products of whisky distillation which are said to be productive of physiologically bad effects, and which are successfully eliminates.

COCOANA.

(SCOTT AND SCOTT, 24, HIGH-STREET, BIRMINGHAM; AND WESTON, HUNT, AND CO., 34, SEETHING-LANE, GREAT TOWER-STREET, LONDON, E.C.)

The addition of banana flour to cocoa doubtless improves its digestible character, while it detracts nothing from its agreeable flavour. Cocoana is compounded on these lines, as is evident from a microscopical examination. We regard this introduction as of some dietetic importance, since it further reduces the proportion of indigestible cocoa fat, while it does not overburden the cocoa with starches that tax the digestive functions.

"EVER-FRESH" BAKING POWDER.

(W. A. DANIEL, 18 AND 20, PARK-LANE, LIVERPOOL.)

The question of the legality of adding alum to baking powder was adversely decided by a recent case, when the Court of Appeal ruled that baking powder, not being an article of food within the meaning of the statute, might have all sorts of objectionable things added to it. This ruling prompted us some time ago[1] to publish the names of makers of powders free from alum, for the guidance of our readers. To this list must now be added the name of the maker of the above specimen, which we found to consist of perfectly pure ingredients. It evolves a desirable amount of carbonic acid gas on moistening, and keeps well, being packed in tight tins provided with lever lids.

(1) CHICKEN JELLY. (2) MUTTON JELLY. (3) CURRIED FOWL. (4) CURRY SAUCE.

(HALFORD, 12, UPPER ST. MARTIN'S-LANE, W.C.)

The value of meat jellies in impaired digestive function is well known, but, amongst other things, it is essential that they should possess a flavour which is acceptable to the fastidious palate of the invalid. It is especially from this standpoint that we regard the mutton and chicken jellies of the above manufacturer as a real success, the flavour of which, while being agreeably delicate, is still distinctive of the meat bases employed. Analyses gave the following results. Chicken jelly: moisture, 80·74 per cent.; mineral matter, 1·33 per cent. (chiefly potassium phosphate); meat extractives, 17·93 per cent. (of which 16·38 per cent. was nitrogenous matter). Mutton jelly: moisture, 85·38 per cent.; mineral matter, 1·51 per cent. (potassium phosphate); meat extractives, 13·11 per cent. (of which 12·78 per cent. consisted of albuminoid substances). They are both clear amber-coloured jellies, free from salt and burnt flavour, and will prove to be convenient restorative and stimulant agents for invalid use.

We have received, also from the same maker, two specimens of his tinned curried provisions—viz., curried fowl and curry sauce—for the excellence of which he has enjoyed a long reputation. They are free from reproach, so far as analysis goes, being evidently made from carefully selected materials, while they possess a delicate piquancy characteristic of the Indian-made dish. For export and for travelling purposes they supply a much felt want.

FACSIMILE HUMAN MILK.

(WELFORD AND SONS, LIMITED, ELGIN-AVENUE, MAIDA VALE, W.)

Although we cannot admit that the composition of this milk is literally a facsimile of human milk, still it approaches more nearly to mother's than it does to cow's milk. Our analysis was as follows: total solids, 13·08 per cent., containing fat 3·30 per cent.; mineral matters, 0·52 per cent.; specific gravity, 1032. It certainly possesses one very distinct advantage, which is that, being supplied from farms near London, the milk is dealt with when quite fresh, so that contamination and delay during transport are avoided. The specimen submitted to us was a pure and healthy product.

BURNHAM'S CLAM BOUILLON.

(SOLD BY GORDON AND DILWORTH, ST. GEORGE'S HOUSE, EASTCHEAP, E.C., AND BURROUGHS, WELLCOME, AND CO., SNOW-HILL-BUILDINGS, E.C.)

The clam is, of course, a bivalve not found on English shores, but the above broth, we imagine, gives a very good idea of what its taste is like. The bouillon is a murky, opalescent liquid of saline taste, but possessing an agreeable, delicate flavour, calling very much to mind that of lobster. The following is an analysis of the sample submitted to us: total solid matter, 13·48 per cent.; organic matter, 9·12 per cent., containing 2·52 parts proteid matter; mineral matter, 4·36 per cent., of which 3·64 per cent. proved to be common salt. It will thus be seen that it contains a somewhat higher proportion of proteids which are soluble and uncoagulable by heat than does milk. The mineral matter consists largely, of course, of common salt, but phosphates occur in it as well. There is little doubt, therefore, that clam juice possesses distinct nourishing properties. We could trace no objectionable preservatives in the bouillon, or any evidence of metallic impurity, and we are glad to find that the makers recognise the desirability, or rather the necessity, of storing the broth in glass bottles in preference to metal tins.

GINGER BEER.

(HAY, REGENT'S-TERRACE, ANLABY-ROAD, HULL.)

In this well-brewed product the essence of ginger which is prepared by the above maker has been substituted for the ordinary hot-water decoction of the root. The advantage thereby gained is distinct as regards the palate, while, of course, the superfluous and useless extractives of the root which are opposed to the healthy condition of the beer are excluded. On analysis the following results were obtained: absolute alcohol by weight 0·79 per cent., by volume 0·99 per cent., being equal to proof spirit 1·74 per cent.; extractives, 11·26 per cent.; ash, 0·09 per cent. It is a pleasant beverage and free from the pungent principles of ginger substitutes, which are not infrequently met with in preparations of this kind.

AUSONIA NATURAL ITALIAN MINERAL WATER.

(COSENZA AND CO., 95 AND 97, WIGMORE-STREET, CAVENDISH-SQUARE, W.)

This table water possesses pronounced alkaline properties, and is only slightly charged with carbonic acid gas, being bottled in the same condition as it flows from the spring. It is markedly soft to the palate and yields on evaporation 95·20 grains of saline matters per gallon, composed chiefly of alkaline carbonates, with but a trifling quantity of common salt. Like most waters of its class, it possesses distinct diuretic properties, and is further claimed to be an aid to digestion—simply, we infer, on account of its acid neutralising qualities.

[1] THE LANCET Special Analytical Sanitary Commission on Yeast Substitutes, with especial reference to the use of Alum in Baking Powders. THE LANCET, March 3rd, 1894.

New Inventions.

THE NARCOTISING GLASS MASK.

DR. WILLIAM VAJNA of Budapest has invented a simple and clean inhaler for the administration of anæsthetics. The inhaler, which we figure below (Fig. 1 and 2), consists of a cut-glass mask shaped so as to cover the mouth and nose. It is held in position by a glass handle which is easily grasped by the finger and thumb or two fingers. The edge of the glass is carefully trimmed, and is supplied with an indiarubber band, while the upper part of the mask has flannel stretched across it, just as a drumhead is fitted. The chloroform or whatever anæsthetic is to be employed is dropped on to this flannel. The following advantages are claimed for this mask: 1. It is easily and rapidly

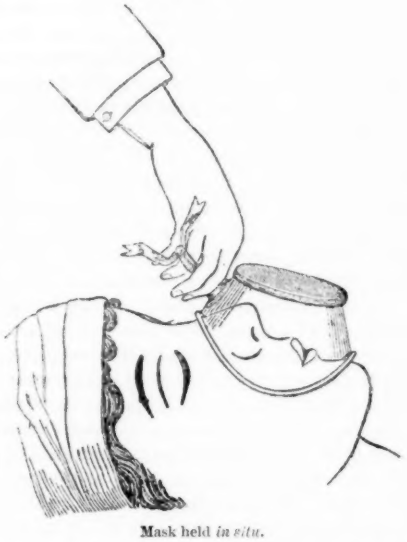
cleaned, the flannel and indiarubber band are replaceable, while the glass can be boiled and sterilised with disinfectants. 2. The transparency of the mask permits of the patient's face being watched throughout the administration. 3. The anæsthetic cannot trickle down the glass, as

FIG. 1.

Vajna's mask. A, transparent glass mask; B, elastic band; G, flannel covering over top.

it is caught by the rim, and so cannot drop upon the patient's face or be wasted; this ensures economy. 4. It enables the administrator to carry out with accuracy the "drop method" of giving chloroform; Dr. Vajna believes in this method and advocates it in the case of persons

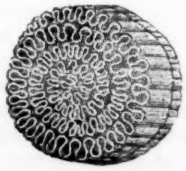
FIG. 2.



Mask held *in situ*.

in feeble health and for alcoholics. 5. In the event of vomiting or foul expectoration occurring during anæsthesia this mask, being so easily cleaned, possesses obvious advantages. Dr. Vajna has also provided a "rose"

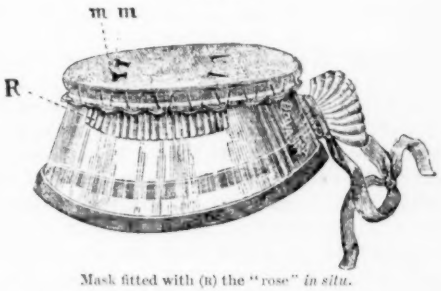
FIG. 3.



"Rose" for evaporating the anæsthetic.

(Fig. 3), which is pinned on the flannel inside the mask. Bromide of ethyl or pental when used are dropped upon this "rose" and the mask kept closely applied, ten or fifteen grammes being the quantity of bromethyl used. If more is needed it is added from the outside. For ether the mask is said also to answer well. The "rose" being placed in position (Fig. 4), ten or fifteen grammes of ether are

FIG. 4.



Mask fitted with (R) the "rose" *in situ*.

poured on it and the mask carefully fitted over the mouth and nose. More may be added as required from the outside. The ether flows to the lower surface of the "rose," where it is held by capillary attraction and evaporates close to the patient's mouth. If the interior of the mask grows moist it can be wiped or the inconvenience obviated by smearing the glass with a thin film of glycerine dissolved in water. The inventor claims for this mask that it answers well for any of the anæsthetics mentioned above, and thinks it superior to most of the appliances used in the Continental hospitals. In the case of chloroform and its congeners we have found it admirably adapted for the purpose for which it is devised. In operations about the face and neck, in which it is necessary to avoid the possibility of septic infection, Dr. Vajna's mask is most valuable. Whether it can be used as successfully for the induction of narcosis by ether must, we think, be assumed with less confidence.

"RELIANCE" CLINICAL THERMOMETERS.

THE accompanying diagram illustrates a new shape of clinical thermometer which has been the outcome of practical experiments made to satisfy the requirements suggested by the authorities of St. Bartholomew's Hospital, they being desirous of having a clinical thermometer provided which would be much stronger in the constricted portion and so obviate the expense of having to replace numerous breakages. Messrs. Arnold and Sons have succeeded in making a clinical thermometer whereby the constriction is the strongest part of the instrument, so that if dropped on the floor it would certainly not break at that part of the stem. In all other ways the new form will be found to be as good as the ordinary pattern, taking a record of temperature with equal rapidity. This seems to be one of those new ideas which ought to have occurred a great deal earlier to a great many people; it is so simple and yet meets so well-known an annoyance. What sum annually is lost to our hospitals in London alone by the breakage of clinical thermometers would make an interesting calculation—the total would certainly be equivalent to a sum sufficient to support two beds, and a large proportion of these fractures take place at the constricted waist. Children also are apt to fit their teeth into the groove, with disastrous results.

THE LANCET.

LONDON: SATURDAY, JANUARY 5, 1895.

IT has long been our custom when standing upon the threshold of a new year to pass in review the leading facts which affect the position of THE LANCET in its relations to the Medical Profession. Those relations are, indeed, of such a character as to demand from us from time to time an account of our stewardship. For it is our aim to make THE LANCET in the fullest sense the organ of professional opinion and the just reflection of professional sentiment—not of any mere section, however large, or of any clique, however influential; and to our readers, therefore, we incur a double responsibility. Not only do we propose to ourselves to furnish them from week to week with information and news, but also to utter and record their own feelings upon the various matters which come successively into prominence, and thus to fulfil at once the functions of eyes and ears and speaking-mouth to our constituents. The fulfilment of such an office implies the closest communication between our readers and ourselves.

There is one branch of our work to which this year we desire and intend to devote especial attention—namely, the Mirror of Hospital Practice. The brilliant results which have in recent years been reached in the direction of biological study—particularly of pathology and bacteriology—have tended perhaps to throw somewhat into the shade in what may be called "public estimation" the painstaking labours by the bedside. But those who are actually engaged in the practice of the healing art can never lose sight of the capital importance which attaches, even for purely scientific purposes, to clinical study. Comparisons are never so odious as when they are drawn between two excellent things for the purpose of disparaging one of them. We shall not, therefore, seek to determine the relative importance of research work and bedside observation; but it is perhaps not unfitting to point out here that the work of clinical observation and record is one which makes well-nigh as great a demand upon the time of the observer and upon the space devoted to the record of observations as do the achievements of the laboratory. For this reason such work has a peculiar interest for us to-day, when the *rôle* of medical journalism in promoting the science and the art of medicine is specially under notice. In the Mirror of Hospital Practice may be found a vast collection of what may be termed medical or surgical achievements, always significant, although removed by their rarity from the opportunity of frequent observation. But what the clinical record must necessarily, from the nature of the facts to be recorded, want in precision is to a large extent supplied by the variety of its instances; while every observation made under those conditions has the advantage of being an exact case in point, so far as its goes. Nor is this all. We make use of the material by quoting parallel cases and giving full references to similar procedures, with bibliography when it is available. Man is to the medical practitioner by far the most interesting of all possible object of observation and he never feels quite so sure of his ground as when he is building upon this foundation.

Another branch of our work in which the coöperation of our professional brethren bears a principal, though somewhat less formal, part comes naturally to mind at the present moment, when we are awaiting the detailed reports of the Indian Medical Congress, which has recently concluded its sittings at Calcutta. In the reporting of such proceedings there is of necessity a considerable exercise of editorial discretion in the making of necessary abridgments and the choice of opportunities in the way of deciding upon the early publication of a cursory notice or the delayed publication of a full report. It will easily be credited that the exercise of this discretion is at times not at all an easy task, for it may happen that the importance of an original communication is by no means recognised, perhaps by no means recognisable, at the time when it is first made. For example, the earliest notice which THE LANCET contained—and, for that matter, any English journal contained—of the antitoxin treatment of diphtheria was comprised in a very brief notice of a communication on the subject made to us by our special correspondent at Berlin, and serves to show in a very striking way how the routine of publication secures a measure of recognition and an effective publicity for all matters of abiding interest, even although their full significance may not be recognised at the time when they are, so to speak, automatically placed on record. If, on the other hand, it were necessary to draw attention to the admitted importance of many of the addresses which have been reported *verbatim*, and with a minimum of editorial preparation, in our pages it would be easy to draw from the year just closed many striking illustrations. Thus far we have spoken of what has long been an established routine, but the problems which face the medical practitioner of to-day cannot be solved by the use of any universal formula or, indeed, by any number of familiar methods of solution. The growth of science, the spread of civilisation, changes, some for the better, others for the worse, in modes of life; all these things are constantly preparing new problems, new difficulties, new duties for the medical man. The introduction of steam at the beginning of the present century revolutionised the conditions of life, affecting all classes of society in turn and none more profoundly than the medical profession. The introduction of electricity into the arts bids fair at the end of the century to repeat the marvel. To keep the pace new appliances must be brought into use and new energy be constantly infused. Our readers are aware that some two years ago we found it desirable to establish an Analytical Laboratory under editorial supervision, and the evidences of its activity have been continually before our readers in a succession of reports. The important commission upon the Hermite process of sewage treatment—to which we made allusion in our notice of the past year last week—will be within the recollection of most of our readers. That even in this department of our work we depend upon the coöperation of our readers may be illustrated by the inquiry into the value of coffee extracts as anti-narcotics in opiate poisoning. This inquiry was suggested by a discussion which arose in our columns as to the value for this

purpose of the coffee extracts of commerce, and resulted in establishing the very satisfactory conclusion that, although the proportion of caffeine varied within considerable limits in various samples subjected to analysis, this agent was present in effective measure in all articles sold under this description.

Of the more strictly editorial branch of our work it does not become us to speak in detail, but we need not hesitate to repeat, as we have said before upon occasions like the present that it is the knowledge that we possess the confidence of our professional brethren which gives us courage to face the duties of a new year. We are by no means insensible to the responsibilities of the position which it has always been our endeavour and our ambition to fill. We have abundant reason to be aware of the labour and difficulty which it involves. But so long as we receive from the profession a continuance of the support which has been for nearly seventy-two years generously extended to THE LANCET we shall take that to be our sufficient warrant for believing that we have not failed to justify in some measure the claims which we have put forward, or to serve according to our power the generation in which our lot has been cast and our fellow labourers in the great field of medicine.

THE general interest awakened by the introduction of a method of treating diphtheria, which has at least the merit of being based on strictly scientific deductions, illustrates the prevailing familiarity with the disease in the present day and the appreciation of its dangers. Diphtheria occupies, in truth, a notable position amongst the zymotic diseases, and the fact that it shows a tendency to increase its ravages, in spite of advances in sanitation, makes it all the more necessary that the means of combating it should be extended. It has of late years received abundant attention on all hands, but the conditions of its origin have yet to be accurately defined. Thanks to the labours of many epidemiologists, there is much material gathered to frame its history on the large scale, to prove its infectivity, and to suggest the adoption of means to prevent its spread. But there are many lacunæ to be filled, as, for instance, its relationship to allied affections of the throat, its possible connexion with animal diseases, its precise association with insanitary conditions of the "pythogenic" class, together with the problems that arise in respect to outbreaks in small communities in rural districts as compared with those arising in densely populated towns. These are questions of high importance; but they concern rather measures of prevention than those of cure. For the latter we must look—as alone we should ever look if medicine is to have a scientific basis—first to the pathological facts that have been slowly garnered concerning the disease. For if we can confidently affirm that we know its nature there is room to hope that means will be found to combat it. And it is mainly because this sero-therapeutic departure claims to be founded on the true conception of the nature of diphtheria that it has been received with so much confidence.

The history of the growth of pathological doctrine regarding diphtheria—in other words, the gradual building up of a rational explanation of its nature—is one of the most interesting examples of the evolution of ideas that medicine can offer. In the early days of this study diphtheria was regarded, it is true, as a specific disease, but it was ranked with fevers as being primarily a "constitutional" affection, having as its especial local manifestation the membranous inflammation of pharyngeal and laryngeal mucous membrane. It was pointed out that the "membrane" re-formed if it were stripped off, and that any raw surface in a diphtherial patient might become coated by this deposit. The peculiar character and extent of this inflammation were studied and the contrast with "croup" emphasised, so that the terms "croupous" and "diphtheritic" came to be applied to inflammatory conditions of mucous surfaces quite independently of the disease diphtheria, standing merely as pathological terms. We need not here reopen the question, so long and ardently discussed, as to the relationship of croup and diphtheria, but we can only express regret that the terms were introduced into pathology as they were. That the disease diphtheria was one which affected the whole organism was evidenced by its concomitant fever, albuminuria, and the sequential paralysis; but that there were special dangers attending the local inflammation, and in particular from its extension to the air passages, was recognised in treatment long before the alternative conception of its nature was adopted. Thus, side by side with general tonic and restorative remedies, local applications, some of great severity, were made to the throat to arrest if possible that spreading of the inflammatory exudation which was so grave a source of danger. Gradually, however, the alternative and truer idea of the disease arose, and was found to be in harmony with the facts, clinical and pathological, which had accumulated on all sides. This was the view that the throat affection which marked the onset of the disease merely indicated the place at which the virus entered the system. Many years ago the possible source of this virus being fungoid arose; but it was long before any conclusive proofs could be adduced of the real nature of the parasite concerned. Even before the bacillus identified by KLEBS and by LÖFFLER had been admitted as the specific agent minute and careful histological research had shown that the tissue changes in various parts and organs of the body were identical with those present in the submucous layers of the inflamed pharynx; and the hypothesis of a virus formed at the seat of entrance and absorbed thence into the blood was adopted long before bacterial toxines were thought of. The *rationale* of prompt and early local treatment was thereby established, whilst internal medication and supporting measures were justified as aiming to sustain the organism under the depressing influence of the general intoxication. When, finally, it became clear that the specific microbe could be identified and isolated, and that its metabolic products could reproduce in animals the essential lesions that characterise the human disease, the finishing touch was put to the juster comprehension of its nature. But bacteriology has not stopped here; it has shown that the diphtherial exudate contains other organisms besides the specific bacillus, and we have yet much to learn concerning the part they play in the various manifestations of diphtheria. That they are not essential

to the production of its main phenomena—e.g., the cardiac failure, the albuminuria, and the later-arising paralysis—seems clear; but they may, and probably are, responsible for modifying the character of the local inflammation and for the development of septicæmic symptoms, which sometimes complicate the disease. The supervention of laryngeal obstruction has no specific character; it is merely a mechanical effect, due to the accident of the bacillary invasion of the respiratory passage, either in direct extension from the naso-pharynx or independently of any implication of the latter.

It is hardly necessary to dwell on the grounds upon which the new "serum therapeutics" are based. They are so recent and so fresh in memory as to need no recapitulation. Suffice it to point out that the method is strictly in accordance with the prevalent acceptation of the nature of diphtheria and with the facts concerning the antagonism to bacterial poisons that have been established by laboratory research. If the results hitherto obtained are confirmed by extended trials the gain to our power over disease will indeed be great. We may look for even more brilliant results if there be no flaw in the chain of reasoning which has led to the advocacy of the method. For should this be correct, we have in these "antitoxins" *the specific* remedies which have been desired since medicine emerged from pure empiricism. The present methods may be crude, and we may look forward hopefully to a time when they will be more refined; but unless the whole fabric of bacteriology is unsubstantial and visionary there is reason to believe that a path has been opened in treatment which may lead to our mastery over those acute infective diseases whose virulence has wrought more havoc on the human race than can well be estimated.

The time has arrived when the method will be tried on a large scale in this country. That it is not an easy question to determine must be obvious to all. It involves, amongst others, questions of diagnosis, of dosage, of effects due to the remedy *per se*, and of the right estimation of its results as regards the natural course and termination of the disease. An inquiry, to be thorough, must enter as fully as may be into the clinical and pathological history of diphtheria, not only during the period in which the method is being applied, but over a sufficiently long period prior to this. Of the method of study of its effects in individual cases the admirable paper brought before the Clinical Society of London by Drs. WASHBOURN and GOODALL and Mr. CARD[1] offers a good example. Considering the importance of the matter at issue, we can well afford to wait for months, or even years, for a definitive decision on this question. We are not singular in this opinion. It has been expressed by men of authority elsewhere, who have deprecated hasty conclusions both for and against the new treatment, which in this impatient age men are so apt to form.

THE movement in favour of hospitals for poor phthisical patients has made some progress during recent years in this country, and also in Scotland and Ireland. The nation is, however, still far from having grappled courageously or successfully with the very difficult questions which arise in this connexion, and which press urgently for solution. When we reflect upon the fact that about one person out of every seven who die succumbs to phthisis, and think of the hundreds of thousands of phthisical patients who must exist in these islands, and of the paltry number of beds available in the different hospitals for the treatment of the disease, we feel that the machinery of charity breaks down hopelessly at one of the most vulnerable points of the body politic. Yet it would be foolish to ignore the palpable fact that hospitals for the treatment of phthisis stand on a very different footing from hospitals devoted to the treatment of disease in general, or to deny that the limited support which they have hitherto obtained is, if not defensible, at least quite intelligible. To begin with, the disease is popularly regarded as incurable, and there is a widespread feeling that money spent in organising hospitals for its treatment brings no adequate return. Then the treatment of phthisical patients, if pursued according to modern ideas, is more than usually expensive, owing to the generous dietary which is a *sine quâ non*, and many people, sufficiently well-disposed, prefer to give their charitable contributions to objects where economical management is more practicable than it is in the direction of hospitals for phthisis. The frequency of relapses in patients discharged from such hospitals is another explanation of the not uncommon prejudice against them. It is, moreover, open to question whether hospital treatment is of much avail in arresting the progress of the disease where climatic conditions are unsuitable; but, compared to the homes they come from, the phthisical poor gain the benefit of attention and comfort. We think it important to inquire what may be fairly expected from such hospitals, and what views regarding them should be impressed by the medical profession upon the charitable public.

First, we think we are quite justified in asserting that in a certain, perhaps small, proportion of cases of phthisis complete recovery may be fairly expected under favourable conditions. Pathological and clinical evidence both favour this view, but, on the other hand, in any given case of developed phthisis the prognosis must be admitted to be bad. Without unduly pressing the evidence in favour of the more hopeful view of this subject, we have ample ground for the assertion that a certain proportion of properly selected incipient cases will be cured by the carefully regulated hygiene and treatment carried out in a hospital for the treatment of the disease. This is the crucial point on which a large amount of difference of opinion will be found to exist both within the ranks of the medical profession and among educated laymen. Without attempting to argue this question in any adequate manner, we may remind those who dissent from the view above enunciated that it is quite common to find evidence of old-standing and obsolescent tuberculous disease of the apex in patients dying as the result of accident or acute affections. On the clinical side, every physician sees numerous cases of patients who had hæmoptysis and were believed to be "in consumption" in youth, but who, nevertheless, completely regained their health. This, then, should be the first line of defence on behalf of these institutions—viz., that as a matter of fact they do effect some permanent cures. In the second place, we may fairly say that there

[1] THE LANCET, Dec. 22nd, 1894.

are many cases of well-developed but quiescent phthisis where complete recovery is, indeed, impossible, but where some weeks or months of careful treatment in a suitable institution may enable the patient to return to his family and his occupation and for a time discharge the duties of a useful member of society. Such cases are not rare, and no one with much special experience in this department will question their existence. Let it be granted that in such cases relapse is the rule and that the period of useful work is generally short, yet in so discouraging a disease we must for the present be content with small results in treatment. It would be bad philosophy to throw away these small results through impatience or discouragement.

Lastly, hospitals for phthisis have a work to do in connexion with obviously hopeless cases. There are none of the numerous complications of advanced phthisis which do not admit of some palliation and relief, and when we think of what these poor patients suffer in their small, ill-ventilated, and uncomfortable homes our appreciation of even the least hopeful phase of the work of these hospitals will probably rise. It is, however, a very serious question whether advanced and moribund cases should be treated in the same institutions as incipient and hopeful cases. Such a conjunction of cases is beset with many disadvantages, and it may be in the probably distant future that hospitals for the treatment of the malady will be confined to incipient cases, and that advanced cases will be relegated to hospitals for incurables.

An argument for the existence of these hospitals that is likely to gather weight as years go on is the necessity for such institutions in order to segregate the patients and prevent the spread of disease by contagion. Here, again, it is most important not to strain the facts or to overstate what is a sufficiently strong case. We think there is evidence for regarding phthisis as a contagious disease, but it is evident that it is only very feebly contagious, and only contagious under special and exceptional conditions. Beyond this we do not feel it possible to go at present, but, even taking this very moderate view, we can find in it substantial ground for strengthening the argument for the existence of hospitals for phthisical patients. The experience at present being gained in Great Britain, on the Continent, and in America regarding the best methods of conducting such institutions is sufficient to afford valuable guidance for the future. These hospitals should, when practicable, be in the country and surrounded by ample grounds. The sites should preferably be either on elevated ground or adjoining the sea or among pine forests. The soil should be dry and porous. There should be ample access of sunlight and adequate shelter from cold winds. Sheltered level walks are very desirable.

IN this age of associations it is not surprising that we find a proposal made for the formation of an "Association of Qualified Assistants, Junior Medical Officers, and Locum Tenens." The number of gentlemen comprehended in one or other of these three classes must be considerable, and their interests need to be vindicated like those of any other body of men in a somewhat weak position—weak, firstly, in the sense of being in an essentially subordinate position, and, secondly, in being isolated and unorganised. The more the employment of unqualified assistants is decried and discouraged the more does the position of the qualified assistant rise in dignity and importance, and the more natural is it that these gentlemen should have some common bond of sympathy and, if need be, some machinery for combined action. The action of the General Medical Council in disapproval of the employment of unqualified assistants in any responsible capacity has tended much to quicken interest in this subject on the part of both principals and qualified assistants. We shall therefore look with interest to the response to our correspondent's letter proposing the formation of an association of qualified assistants. The proposal is not one to be rashly disposed of. It is a subject which should be fully discussed and all the objections to it, as well as the arguments for it, should be fairly stated. Principals need not see in such a proposal anything unfriendly to them. All other means for acquainting them with the views of the General Medical Council on the subject of unqualified assistants have been only very partially successful. There is reason to believe that in many districts this is still the rule. And year after year practitioners have to be removed from the Register who avow that they have never heard or seen anything of the limitations imposed by the Council on the use of unqualified assistants. One effect of an association such as that proposed would be to give accurate information on the subject and on the extent to which the limitations of the Council are observed. It would be an error to promote such an association in any hostile spirit, save in hostility to practice by unqualified persons. The demand is more and more that all attendance shall be by, or under the immediate superintendence of, registered practitioners. It would seem that with the solitary exception of the employment of students in their fifth year of education as pupils of a practitioner recognised by the examining authorities and under his supervision, all unqualified assistance is discouraged by the General Medical Council. Medical principals must therefore conform to this. If it involves more expense on their part they must recoup themselves. The public is to be protected, and the public must pay for the protection and for the better service it involves. We have said enough to show that there is some reason in this proposal; but we are not blind to the difficulties of carrying it out or of creating an association that would deal effectively with the evils which it is designed to meet. Qualified assistants have little time and not much money to promote such a big reform as that contemplated or to bring individual cases before the General Medical Council; but they can contribute their share to the general elucidation of a subject which is now very much to the front, and in any moderate and judicious proposals they would have the concurrence of their principals and of many other principals besides.

THE British Medical Benevolent Fund has received a legacy of £500 under the will of the late Mr. F. M. Stone.

Annotations.

"Ne quid nimis."

THE NEW YEAR'S HONOURS TO THE PROFESSION.

GENERAL satisfaction has been felt throughout the medical profession at the announcement that the Queen has been graciously pleased to create two new medical baronetcies and to select for the honour Dr. J. Russell Reynolds, the President of the Royal College of Physicians of London, and Mr. Erichsen, a past President of the Royal College of Surgeons of England. Names, from an official point of view, more representative of the two great divisions of the healing art could not have been well suggested, and personalities more eminently fitted to worthily grace the honours cannot be well imagined. It is not our intention here to recapitulate the claims either of Sir John Russell Reynolds or Sir John Eric Erichsen to the Royal recognition which they have just received; we only desire to echo what we know is the sentiment of the profession at large by assuring them that Lord Rosebery's recommendation would have been the recommendation of all their professional brethren, and that we are glad to know this fact and to record it. One small reflection occurs to us, and, as medical journalists in an age prolific of writing, we think it will not be out of place to make it. Both the new baronets are men of singular literary capacity. To the lucidity of Erichsen's comprehensive and closely written work on surgery generations of students have owed their theoretical knowledge of their science; while Reynolds's System of Medicine was at its issue acclaimed in our columns and universally the standard English text-book of medicine.

"THE STRUGGLE FOR THE LIFE OF OTHERS."

DR. CHRISTOPHER MARTIN recently delivered an interesting address under this title at Birmingham before the Queen's College Medical Society. All who have impartially studied the question are now agreed, he said, that man, in common with the lower animals and with plants, has undergone development in accordance with the laws of evolution. In this developmental process two great influences have been at work: (1) the struggle of each organism for its own life, and (2) its struggle for the life of others. The first of these was recognised by Darwin, Wallace, and Spencer, who formulated the law of natural selection by the survival of the fittest in the struggle for existence. They saw the dark and selfish side of creation and nature's disregard of suffering. But Professor Drummond, in a recent work,[1] has pointed out that from the beginning another and a holier influence has also been in operation—"the struggle for the life of others." In many instances it might be termed "labour for the life of others," the spirit of love in nature. The two fundamental processes of life are nutrition and reproduction. The selfish struggle for existence arose out of the necessity of fighting for food, and is, therefore, directly related to the function of nutrition. The unselfish struggle for the life of others arose out of the necessity for perpetuating the species; it is, therefore, the resultant of the function of reproduction. Throughout all animated nature the process of reproduction involves more or less self-sacrifice on the part of the parent organism. In some of the primitive annelida the mature female dies in liberating the ova. Among the birds the hen laboriously warms her eggs with the heat of her body until the chick comes forth, while the male defends his home from attack and gathers food for his young. These feathered parents do not cease their ministrations till their progeny have learned to fly and forage for themselves. What a tremendous power this struggle for others has exerted in raising mankind out of the beast. According to Professor Drummond the chief factor in this supreme achievement has been the evolution of the unselfish mother. When savage man lived wild in the woods as the ape does now, suppose that two mothers—one selfish and the other unselfish, each with her helpless offspring—were attacked by some common foe: the former flies and abandons her young; the other, who has learned to love her offspring, stays to fight for its precious life or carries it off to a place of safety. The child of the selfish mother perishes, whilst that of the unselfish one survives. The good qualities of the nobler parent are inherited by the surviving child, and so the spirit of self-sacrifice grows from generation to generation. Compared with the mother the father plays but a secondary part in the struggle for others. The dawn of the paternal instinct appears in fishes, in many species of which the male prepares a retreat or nest for his mate to spawn in and assists her in guarding the ova. Among many species of birds a kind of temporary family life is established during the breeding season, and the male takes part in the duty of rearing the young. Among the mammals there is no trace of family life until the human savage is reached. The males of the subordinate mammalian genera fight for their own life and sustenance and for the satisfaction of their animal desires, but they do nothing on behalf of their progeny. According to Westermarck it is the abolition of the physiological pairing season which has effected this change in the case of the human being. This led to the formation of permanent instead of transient love relationships between man and woman, and, family life having been thus established, the foundations of civilisation were laid. Out of the family rose the tribe, and out of the tribe the nation.

[1] The Ascent of Man.

THE HEALTH OF FLORENCE.

WHETHER the Florentines are or are not justified in their confident expectation that the Queen of England will, after her *villeggiatura* in Nice, spend the remainder of the spring in their own beautiful city, we may at least congratulate them on the improved sanitation they have been instituting in that belief. Exceptionally free from zymotic disease as Florence was last winter and spring, her record is even more reassuring for the season now passing. True, the prolonged *tramontana* has levied its tribute on the aged and infirm, and the deaths of prominent citizens among the native and foreign population have once more attested the rapidly fatal course acute pneumonia may run. But excluding that source of disease and death as common to most southern cities at the transition from autumn to winter, we can find as yet in the health returns of Florence nothing but clear and cogent proof that the low mortality of the past year has been more than maintained. A death-rate of from 17 to 18 per 1000, and that, moreover, during months when infectious disease is most diffused and most virulent, is what very few continental cities can boast. The fact, indeed, is one among many which explains the popularity of the Tuscan capital as a winter city for the English-speaking resident. Florence can point to a greater number of such inhabitants than any European centre south of the Alps—indeed, in proportion to native population, she has a more numerous contingent of English-speaking "strangers within her gates" than any other of her continental sisters. Her natural, historical, and artistic attractions, above all, the charm she possesses as Italy's "Modern Athens," might explain her having as large a migratory population as Rome, for example. But only her salubrity, over and above those attractions, accounts for her superior Anglo-American population, whose residence within her urban and suburban bounds extends not to a few weeks,

but to many months, and that year by year. Fully alive to the advantages she secures by the presence of such a society, she is at pains to uphold the sanitary conditions under which it remains and multiplies. A *communiqué* from her hygienic bureau within the last few days of 1894 has, from this point of view, a significance of its own. "Except the month of January"—so runs the communication—"which owed its slight increase of mortality to a brief and transient visitation of influenza, all the rest of the year now closing showed, if anything, a diminution in the death-rate as compared with the year preceding, which, as regards the public health, was in all respects excellent. The later months of 1894 have registered a marked decrease in the fatal cases usual at that season; while not less notable has been the diminution throughout the whole year in the death-rate specially due to infective maladies. These, in fact, have touched a figure so low as to have fallen short of all expectation or forecast." An inspection of the monthly bulletins issued by the communal board of health will be found to confirm this reassuring statement, and we have only to add our congratulations on the result, and expression of the hope that the sanitary efficiency which explains it will continue unimpaired, even if Florence is, after all, disappointed in her expectation of once more welcoming Queen Victoria as her guest.

DIPHTHERIA IN LONDON.

DIPHTHERIA in London has in the last two weeks shown a disposition to decline both in amount of attack and in severity of type. In the four weeks of November the number of notifications in London was 911; but in the same period in December the notifications fell to some 780. The deaths, however, were not very different in the aggregate in the two periods—namely, 183 and 181; but in the last four weeks a large decline has been witnessed, the numbers having been 57, 53, 36, and last week 35, or 20 per cent. of notified cases. The 71 deaths of the last fortnight of December included 4 in Lambeth, 5 in Battersea, 7 in Greenwich, and 6 in Islington sanitary areas. Of the total, 43 were in children aged from one to five years, and other 23 in young persons under twenty years of age. The deaths of last week were just equal to the corrected average. The admissions to hospitals of the Metropolitan Asylums Board were 75, against 104, 111, and 80 in the three weeks preceding; and similarly the patients remaining under treatment last Saturday were 521, against 514, 521, and 510. In Greater London there were 15 deaths from diphtheria in West Ham alone during the latter half of December.

CHARITABLE DONATIONS IN 1894.

ACCORDING to the *Charity Record*, the charitable bequests made during the past year have not been as numerous or large as in 1893. Nevertheless, it is estimated that, for medical and other charities for giving actual relief, something like £3,000,000 has been subscribed or bequeathed during the year. This does not include, of course, what has been given for missionary and educational work. The sums devoted to these latter purposes are much larger, and the claims of education and of religious propaganda contribute undoubtedly to considerably decrease the amount that would otherwise be available for the relief of actual physical suffering. The greater part of the money bequeathed to other than religious and educational institutions has been left to hospital and convalescent homes. Thus, to take only the larger sums, Mr. Barbour, formerly M.P. for Paisley, has given £15,000 to build an infirmary for that town; Baron Hirsch has subscribed £15,000 to the London hospitals; the Earl of Leicester, by giving an additional £5000 has brought his endowment of the Fletcher Convalescent Home of Norfolk up to £20,000; and Messrs. Heath have subscribed £20,000 to the North Staffordshire Working Men's Convalescent Home. Mr. Samuel Weston of Manchester has left to the charities of that town the munificent sum of £115,000. Of this legacy, the Royal Infirmary will get £50,000, and the Salford Dispensary, the Deaf and Dumb Schools, the Blind Asylum, St. Mary's Hospital, and the Convalescent Hospital will receive £10,000 each. Mr. John Clark gives the Paisley Infirmary and other institutions £28,000. Messrs. Schilizzi leave to London, Athens, Constantinople, and Island of Scio charities £20,000. The trustees of the David Lewis bequest offered £70,000 to some Manchester hospitals so that a maternity hospital might be built. Miss Rolleston left £20,000 to metropolitan charities, and Mr. Matthew Honan of Cork, £48,000 to the charities of that city. Mrs. Elizabeth Allan has bequeathed £60,000 to be distributed among the London hospitals, and Miss Wells has left £12,000 to the Lincoln Hospital. In concluding its long list of donors and benefactors, the *Charity Record* mentions the Metropolitan Hospital Sunday Fund, and estimates the amount obtained as £34,000. This is nearly £10,000 short of the sum actually collected; namely, £43,679.

THE RELATION BETWEEN STERILITY AND UTERINE FIBRO-MYOMATA.

THE influence of fibroid tumours of the uterus on conception, pregnancy, and the puerperal state has been recently considered by Hofmeier in a paper an analysis of which appeared in the *Annales de Gynécologie* towards the end of last year. The question as to whether there is any etiological relation between fibroid tumours of the uterus and sterility, either absolute or relative, is one of considerable interest. The current impression undoubtedly is that the relation between them is causal rather than accidental. As in the case of so many other accepted views, the accuracy of this one is now called in question, and a careful consideration of the statistical evidence adduced by Hofmeier makes it clear that, even if we cannot unreservedly accept his conclusions, there is at least sufficient ground for doubting the views hitherto commonly accepted as correct. Hofmeier's figures are based on a total of 213 cases of women with fibroid tumours of the uterus. A review of the details in this series of cases enables him to say that about 25 per cent. of women affected with uterine fibroids and seeking medical treatment are not married, 75 per cent. are married, and of these from 25 to 30 per cent. are sterile. Now, before drawing any conclusion from these figures, it is necessary to know what the percentage of sterility is among the whole class of married women. Probably further information is needed before we can state this exactly, but in the meantime, if we take the percentage of sterility among married women generally, as given by Matthews Duncan, at about 15 per cent., it will be seen that while there is a difference between this percentage and the percentage of sterility among married women affected with uterine fibroids, it is not so great as one might have expected. Still, at first sight—and we are not prepared to say at present that the conclusion is wrong—these figures would seem to justify the opinion that women with fibroids are about twice as likely to be sterile as other married women. Looking carefully into the matter it appears, however, that there is some reason to doubt whether the sterility should be ascribed to the presence of fibroids, or to some other cause. The duration of the sterility in each case, and the date of the first appearance of the symptoms of the fibroid tumours, are important points requiring consideration. Thus the average age of thirty-eight married sterile women was 41·4 years, and the duration of the sterility about sixteen

years. Here, if the sterility is to be put down to the presence of fibroid tumours, we should have to suppose that when the patients were about twenty-five years old the tumours were already exerting an influence unfavourable to conception; whereas, clinically, we know that uterine fibroids are not commonly met with till later in life. It is, however, conceivable that they might at an early period of their development, before giving rise to symptoms, and before attaining a size that would enable them to be recognised clinically, nevertheless have an effect in rendering conception less likely to occur. It should be mentioned that inquiry showed that in some of the thirty-eight cases referred to the patients had been under gynæcological treatment ten or fifteen years before the fibroids appeared. We cannot follow the writer's thoughtful and suggestive paper further in detail, but we may just say that he considers that in most sterile women with fibroids the sterility must not be ascribed to the presence of the fibroids, but to some other cause, chiefly because the sterility almost always dates back to an age when in all probability there were no fibroids present. We have indicated a possible fallacy in this argument above. While the writer does not go so far as to say that fibroid tumours in themselves favour conception, yet in so far as their presence frequently prolongs the period of activity of the whole generative apparatus, and especially of that of the ovaries, they do in that sense increase the chance that pregnancy may occur.

SIR J. RUSSELL REYNOLDS ON THE MEDICAL STUDENT.

MAN changes, but changes slowly. If his "thoughts are widened by the process of the suns" they are only greatly altered where perception changes with increasing knowledge. The change in human nature is too small, since Socrates and Plato lived and saw and thought, to make that which they said less precious than any words that have been uttered in the centuries since they lived. Medical education has progressed with long strides during the last thirty years, but medical students are very much the same. Their tendencies to work or idleness are only altered as far as external forces have been organised to help the one and to repress the other, and any difference that can be discerned is small, and rather one of aspect than reality. As far as we are aware, the characteristics of the medical students who surround the bedside have been once, and once only, made the subject of a bedside lecture. It was not, indeed, given in a hospital ward, but in a theatre, yet its most appropriate title would be "A Clinical Lecture on Medical Students." Thirty-one years have passed since this lecture inaugurated a winter session at University College and was published in THE LANCET. We can do no greater service to the profession, to those who are or have been students, and we believe we can give them no greater pleasure, than by reproducing to-day the address which we printed on Oct. 3rd, 1863—reproducing it when all are recognising the justice of the honour bestowed upon the lecturer. And in going so far out of ordinary routine as to reproduce *verbatim* an address delivered as many as thirty-one years ago, we may be excused if we dwell a little forcibly upon our reasons. They lie in the words of the lecturer. Behind the graceful touch which sketches salient features with such accuracy can be discerned the strength of deep conviction, while confident precision is wedded to the apt use of phrases. Nor is this all. There is a deeper meaning which can escape no teacher and no one whose later experience throws into light or shade the memory of his student life. The types of student here portrayed are types of average aggregates, but the truth to nature of their features is conspicuous. They present the lineaments known so well to every one who has had to observe the actual specimens. By most, indeed, examples will be remembered which conform almost perfectly to the descriptions. The question they suggest—and this is the deeper meaning to which we refer—is this: Is it not possible to do more to help the student who needs guidance? The need for discernment of personal character and for appropriate influence and direction are great in the case of many varieties of the type of "O. Goodman," and no less so in that of his brother, and of the very different "David." How many men there are who would do well and now do not if only they were observed, discerned, and watched and guided for a few months. The frequent examinations now adopted afford the means to a certain extent, but the work demands a special perseverance not always available. Yet such help should not be hopeless of attainment. With it much that is good would be made better, much that is failure would be changed into success, sometimes into signal excellence. No more forcible and no more eloquent indirect assertion of this need has, perhaps, ever been presented than the lecture we re-present to-day—to readers of wider knowledge and, let us hope, of greater wisdom, who can thereby but feel more keenly alike its force and power and beauty.

THE DUTY OF RAILWAY SURGEONS.

AN interesting paper was read by Mr. Clark Bell before the Section on Medico-Legal Surgery of the Medico-Legal Society of New York on Nov. 15th, 1894. The subject matter was the True Field of Duty of the Railway Surgeon. Mr. Bell incorporated with his propositions the written opinions of several leading American railway surgeons upon the line of action that a railway surgeon should take. In order that there may be no misunderstanding we may premise that Mr. Bell's paper seems chiefly to refer to cases in which the medical officer of the company is charged with the treatment of the injured person, who is in most instances an employé of the company. We entirely agree with Mr. Bell's contention that such officer should under no circumstances take part in the settlement of claims for compensation beyond drawing up an honest report of the condition of the person injured; and in common fairness a written copy of such report should be delivered to both parties. He ought on no account to advise as to the amount of compensation; for, however great his integrity and sense of justice might be, it would always be open to the construction that, to say the least, he was actuated by unconscious bias in favour of the company who employed him. The written report should be made soon after the alleged injury, and should anything further of importance transpire relative to the inquiry a supplementary report should be given. If this course were adopted either party, if dissatisfied, might call in an independent medical man. Moreover, such reports could be used as evidence at the trial of an action, and hence there would be the strongest motive for the railway surgeon not only to act fairly, but with due care. We repeat, that in cases like the above the surgeon should take no part in negotiations for a monetary settlement of a claim. With rare exceptions, railway companies in this country have permanent surgical officers of known repute and ripe experience, whose duty it is, not to attend employés, but to advise in cases of accident to passengers. Here his services are exclusively on behalf of the company. We have on a former occasion, referred to by Mr. Bell, asserted that a railway surgeon should not use his influence to induce a person to settle a claim, and, in fact, should never propose a settlement. We are still of opinion that it is perfectly equitable and consonant with the due discharge of his professional duty to adjudicate an award in conjunction

with the medical man on the other side, provided that both parties to the issue mutually agree upon such reference. If no settlement is arrived at it is understood that the negotiations were without prejudice. In such an event it is advisable that the particulars should not be divulged.

A STORY OF A HALFPENNY.

THE story in Pickwick of the boy who swallowed a bead necklace and rattled audibly, even when wrapped in a watchman's coat, is fairly equalled by an account that has just reached us of another boy who swallowed a halfpenny eighteen months ago. In spite of diligent search no trace of the coin could be found, and the boy himself gave no indication of having withdrawn a coin of the realm from circulation. He remained in good health, we are told, until a few days ago, when he had an attack of pneumonia, and during a fit of vomiting the coin reappeared. If the boy had not suffered in the interval the coin had; it was "very green," and the "engraving and date were very much worn." This is unfortunate, as it leaves an element of uncertainty in the case.

THE EVIDENCE OF THE SENSES.

MANY writers have at various times been attracted by the delightful absurdities which are often revealed by a calm and dispassionate investigation into the value of evidence in medical matters. There is a certain satisfaction in laying bare erroneous observations and in tracing the primary mistake which has led to the formation of false doctrines. There may even be pleasure in refusing to shout with the crowd, and in proving later that there was really no cause for excitement. But when there has really been a cause, and it has been misinterpreted by the multitude, how delightful to step in and set the world right, if only one can be sufficiently certain of one's own observations. It is of all things most difficult to distinguish between what we observe and what we think we observe, and this subject has seldom been developed with greater wealth of illustration than in the address by Mr. Bland Sutton, which will be found on another page (p. 12). His accounts of the acardiac fœtus, of the button in the calculus, and of the marooned men are sufficiently grim and sufficiently neat to bear reproduction in many medical post-prandial discourses, even though they have a certain family likeness to the masterly deductions of the immortal Sherlock Holmes. To medical journalists it is a little depressing to find Mr. Bland Sutton considers that the "enormous number of incomplete records contained in periodical medical literature" is a source of much unsound knowledge; we venture to hope that in many cases the records are only "incomplete" because the patients recovered and the opportunity of confirming the diagnosis by post-mortem examination did not arise. Still, facts are facts, and even clinical observation, as the term implies, rests on the evidence of the senses.

TWO CASES OF ANEURYSM.

WE publish to-day two cases of aneurysm, each of which in its way is of special interest. Deputy Inspector-General Reid, whose name is associated with a particular method of treating external aneurysm, records a very successful case of popliteal aneurysm rapidly cured by the use of the elastic bandage. The special interest of this case lies in the fact that there was an aneurysm on each popliteal artery, and that they were successfully dealt with by different methods of compression—one by Carte's compressor, the other by Reid's method. He is of opinion that not only was his method more rapidly successful than the other, but that the cure was obtained with permanent obliteration of a shorter length of the main artery. The fact is indisputable, but it is by no means clear that the responsibility for this rests with the treatment used. It is certainly quite unusual for the cure of a popliteal aneurysm, however brought about, to lead to obliteration of the whole of the superficial femoral artery, and it is to be borne in mind that the right aneurysm was distinctly smaller than the left; its cure would, therefore, take a shorter time to reach its final stage, and the consolidated sac would form a smaller mass than on the left side. Since the great improvement in the method and materials used for ligature of arteries, Reid's treatment and all other forms of compression have been much less employed. This case is an admirable example of the successful use of the elastic bandage, and its success was largely due to the care with which every detail of the treatment was carried out, particularly the protection of the clot. Brigade-Surgeon-Lieutenant-Colonel Stevenson's case was still more important. It was a case of a large aneurysm of the superior mesenteric artery, which was increasing rapidly, and in which surgical interference was thought to be necessary. Moore's method was employed, and about two yards of steel wire were passed into the sac. Unfortunately, considerable hæmorrhage subsequently occurred from the puncture in the sac, and the man died of syncope. This was in all probability a hopeless case. It would have been impossible to obtain cure of the aneurysm without obliteration of the superior mesenteric artery, and this would have caused gangrene of the small intestine. The introduction of steel wire into the sac of an aneurysm has not been a successful plan of treatment, and we think it will soon be abandoned altogether, for when cure is compatible with life, an aneurysm can generally be dealt with by other means.

'THE LANCET" RELIEF FUND.

THE sixth annual report of THE LANCET Relief Fund, together with the balance-sheet for the year 1894, will be found on p. 59. It will be seen that in the course of the year the sum of £344 has been granted in relief, by way of gift or loan (without interest), according to the exigencies of the several cases relieved, which numbered in all twenty-six instances. The Almoners have found it necessary again in their report to draw attention to the objects of the Fund; and the fact that as many as thirty applications proved upon investigation to be founded upon circumstances of a kind which do not fall within the defined objects of the Fund shows that no small degree of misapprehension still exists in reference to this matter. We make no apology, therefore, for referring in this place to the passage in which the Almoners request those readers of THE LANCET who may be asked to endorse applications before complying to peruse the application form and explain the precise object of the Fund to the applicants, especially to those whose cases do not come within the purpose for which the Fund has been established. In pressing this request upon our readers we are not actuated by any wish to avoid the labour and the pain of considering such applications and replying in the sense of refusal to the applicants, but our desire is, as far as possible, not to raise any unfounded hopes with their resulting disappointment. It is our pleasant duty in this connexion to express, in the name of the beneficiaries of the Fund, and in our own behalf, a warm appreciation of the services which have been rendered by the Presidents of the two Royal Colleges and of the General Medical Council in the capacity of Almoners of the Fund, and also to Sir Henry Pitman, who has again acted as its honorary auditor. It is not necessary to add that Sir J. Russell Reynolds, Mr. J. Whitaker Hulke, and Sir Richard Quain are men

upon whose time professional duties make a large demand, and that the performance of their voluntary task is not only valuable for the benefit which it confers upon some of the more unfortunate members of the professional brotherhood, and graceful for the evidence which it affords of a friendly feeling that raises the profession into a fraternity, but is costly to them for the personal sacrifice which it involves and therefore under every point of view worthy to be offered upon the altar of that "goodwill among men" which the season now so swiftly passing away has brought once more to mind.

DEGENERATIONS AFTER CEREBELLAR LESIONS.

A RECENTLY ISSUED volume of the Proceedings of the Royal Society contains an abstract of an important paper on this subject by Dr. Risien Russell. The object of the investigation was to determine which paths degenerate after ablation of one lateral lobe of the cerebellum and after extirpation of its middle lobe. After the former operation degeneration took place in all the peduncles on the side of the lesion and in the superior peduncle of the opposite side, but no degenerated fibres were found in the middle or inferior peduncles of the opposite side. As regards the degenerated fibres in the peduncles on the same side, those in the superior peduncle decussate in the posterior quadrigeminal region and pass to the opposite red nucleus and optic thalamus. None could be traced beyond this point. The degenerated fibres in the middle peduncle were found to pass chiefly to the grey matter on the opposite side of the pons. No support was found to Marchi's observation that degenerated fibres pass from this peduncle in the fillet and posterior longitudinal bundle to the corpora quadrigemina and periphery of the antero-lateral region of the spinal cord, and that some pass to the corpus striatum by the pyramidal tract. Some degenerated fibres, however, were found passing between the pyramidal bundles. Of the fibres which degenerate in the inferior peduncle, the majority occupy the lateral region of the medulla, becoming more and more scattered as they pass downwards. Below the superior pyramidal decussation the degeneration is represented by merely a few scattered fibres occupying the antero-lateral region of the cervical cord. Beyond this none can be traced. Degenerated fibres were found to pass from this peduncle to both inferior olivary bodies, although no well-marked tract to the opposite inferior olivary body, as described by Ferrier and Turner, was found. But Dr. Russell's results are in agreement with those of the above-named observers in affording no corroboration to Marchi's view that degenerated fibres pass from this peduncle to the ascending root of the fifth, the roots of the cranial nerves, and the spinal nerves. In regard to the degeneration in the opposite superior peduncle, the fibres affected represent fibres which degenerate in the cerebellum, passing from the seat of lesion across to the intact half of the organ and leaving it by this peduncle. These fibres occupy a special position in the peduncle, a part which is comparatively free from degenerated fibres on the side of the lesion and a part occupied by degenerated fibres on both sides when the cerebellum is divided into two by a mesial incision. These facts are regarded as a refutation of Marchi's statement that none of the peduncles contain commissural fibres. After extirpation of the middle lobe degenerated fibres were found in all the peduncles, a result which agreed with the observations of Marchi, but controverted those of Ferrier and Turner. Those in the superior peduncle occupied all parts of it, decussated in the region of the posterior corpora quadrigemina, and terminated in the opposite red nucleus. Those in the middle and inferior peduncles have a similar distribution and course to those resulting from ablation of one lateral lobe of the cerebellum. No evidence was found in support of Marchi's contention that degenerated fibres from this source pass to the cranial nerve roots through the posterior longitudinal bundles and to the antero-lateral columns of the cord by way of the fillet. Dr. Risien Russell, agreeing with Ferrier and Turner, finds no evidence for the further statement made by Marchi that there is a distinct antero-lateral tract of degeneration throughout the spinal cord after lesions limited to the cerebellum.

OPEN SECTION FOR IRREDUCIBLE DISLOCATION AT THE SHOULDER-JOINT.

DR. W. N. KEENER, in a recent number of the *New York Medical Journal*, narrates the case of a man aged twenty-two years, very muscular, who, while attempting to mount an unruly horse, sustained a dislocation of the head of the humerus. Dr. Keener endeavoured to reduce it by manipulation, but failed, and tried all known methods of reduction without success. He decided that if reduction was impossible under an anæsthetic he would make an open section. The patient being anæsthetised another attempt at reduction was made, which proved unsuccessful; so an incision was made over the pectoralis major, which, being drawn downward, revealed the head of the bone deep between the pectoralis major and the pectoralis minor. It is stated that the capsule was not ruptured, but seemed to be pushed before the head of the bone; while closely hugging the anatomical neck, both anteriorly and posteriorly, were large, firm, cordlike bundles of fibres reinforcing the ligament proper. The anterior was the larger of the two. Both their humeral and scapular attachments were so close together that they were drawn very tense, and any attempt at reduction only seemed to draw them tighter. These were both divided with a scalpel and the bone went easily into position. The wound was closed and sealed with collodion, and healed by first intention. The joint appears to be as good as ever.

THE DIFFUSION OF SMALL-POX.

SMALL-POX has continued to be very quiet in London during the last fortnight of December, the fresh cases during that period amounting to only 5 and the fatal attacks to 2—one of a vaccinated and one of an unvaccinated adult—both belonging to the Marylebone sanitary area. Mr. Wynter Blyth, the medical officer of health for that parish, states that the disease still occurs in occasional single cases, but the epidemic prevalence has entirely gone. He has advocated very strongly the provision of such means of disinfection for the parish as will enable the officials to secure the proper treatment of clothing worn by all who have been exposed to infection and possessing only the clothes they stand in. The cases of small-pox remaining in the hospitals of the Metropolitan Asylums Board on Saturday last were 16 in number—a decline from 32 three weeks previously; and only 1 case was last week admitted, the admissions of the preceding week having been *nil*. In the Midlands matters are getting still brighter, the records for the latter half of December showing a falling-off in the number of attacks. Wolverhampton, West Bromwich, Walsall, and a few other towns have had experience of the disease, but only in a very slight degree. At Birmingham the cases in the two weeks were some 30, against 50 in the preceding fortnight, whilst the deaths were only 2, against 6. In Liverpool half a score of attacks and 2 deaths were registered. One death by small-pox was last week registered in Hull. In Edinburgh small-pox last month showed another decided increase, as many as 43 cases being notified in the first fortnight, new cases being also heard of in Leith and North Berwick. Within the space of a month 6000 vaccinations and revaccinations are estimated to have been performed in Edinburgh gratuitously. Similarly, in Dublin much vaccination and revaccination are being performed, the public being alarmed at the immense strides recently

made in the city by small-pox. On one day, Dec. 17th, no less than 40 cases of the disease were reported, bringing the total of a week to over 100 attacks heard of. In the week ended Dec. 15th the number of admissions to hospital was 88, a rise from 31 in the week immediately preceding, whilst in the following week there was a further increase to 116 admissions, with 12 deaths, in hospital in the fortnight, 4 of these deaths being of unvaccinated children and 1 of an unvaccinated adult. The deaths of vaccinated persons were all in adults. Despite the 91 discharges from hospital in the third week of December there yet remained under treatment 131 patients, exclusive of 126 convalescing patients in the South Dublin Union Small-pox Hospital at Kilmainham. Up to that time the deaths in the city numbered 53 and the admissions to hospital just on 600.

THE CARTOGRAPHY OF MALARIA.

MALARIA in its distribution and intensity of incidence has of late years received much attention in Italy. Its haunts, indeed, constitute that real "Italia Irredenta" (unreclaimed Italy) which is far more deserving of the solicitude of her statesmen than that on which so much political agitation is expended. A glance at the latest accession to the solution of this great sanitary problem—the "Carta della Malaria," recently issued by the Direzione Generale della Statistica—will illustrate our meaning. This is a beautiful map of Italy (1 : 1,000,000), in which, by gradations of colours, we may realise the death-rate due to the "infezione malarica" and to the "palustral cachexia" throughout every commune in the kingdom in the three years beginning 1890 and ending 1892. In that period the mortality from malarial fever and the "cachexia palustralis" conjointly amounted to 49,407, corresponding on an average to fifty-four deaths yearly per 100,000 inhabitants. This proportion to population, however, varies within greatly extended limits. In the communes indicated on the map by a blue tint the annual mean of deaths from "infezione malarica" is 8 per 1000, such communes, moreover, being most numerous in the south-western tract of the island of Sardinia, in the south-east of Sicily, in the Basilicata (on the main land), and around the Pontine Marshes. As the map was constructed on the statistics of "deaths" from malarial fever, without regard to non-fatal cases from the same cause, we find that the provinces in which the fevers are certainly frequent, but rarely intense enough to cause death, are marked in light-coloured tints. The communes where this set of conditions prevails are considerable in number, and are situated mostly in the valleys watered by the lower reaches of the Po, exception being made, however, of the Veronese territory and of the Cremasco. Again, the Mediterranean littoral presents foci of malarial infection in varying degrees of intensity, the most severely visited being the territory around Grosseto, the Agro Pontino, and in the Salermitan region—the plain of Pæstum, so much frequented by tourists. A yet more interesting tract is that filled by the Eternal City. There we find that cases of death from malaria have, since 1880 to the present day, been rapidly diminishing in number. For instance, in 1881 there were in Rome 650 deaths due to malarial fever, in the following year 505, and in 1892 only 139. Passing from the city to the neighbouring Campagna, we find, of course, the intensity of the incidence of the malaria much higher. On the Adriatic slopes of the Apennines occurs again a severely visited zone, commencing above the promontory of Gargano and descending by Molise, the Capitanata, and the Basilicata territories to the Ionian Sea, showing a mortality about as heavy as that of the islands of Sicily and Sardinia. As affecting the general mortality of the Italian people, the figures from 1888 to 1893 maintain a pretty steady average—that is, from fifteen to sixteen deaths a year. By those of our readers who are specially interested in the malarial problem, clinically as well as hygienically, this excellent map should be studied conjointly with the masterly treatise entitled "La Malaria in Italia, dei Dottori Sforza Claudio e Gigliarelli Raniero, Capitani Medici." These medical officers gained the Riberi prize ("primo premio") for this work, and in its published form have added to it seven large tables in chromo-lithography in illustration of the fully detailed exposition of the letterpress. The therapeutic value of remedies will be found to vary somewhat with the locality in which the fever is endemic—an induction not the least significant among the many in which Drs. Sforza and Gigliarelli's monograph abounds.

THE subject of the next triennial award of the Parkes Memorial Prize is "The Etiology, Prevalence and Prevention of Diphtheria." The prize consists of a bronze medal and a sum of seventy-five guineas. The competition is open to executive officers, on full pay, of the Navy, Army, and Indian Medical Services, except assistant professors at Netley, who are not eligible to compete during their period of office. Essays should reach the secretary, Parkes Memorial Committee, Royal Victoria Hospital, Netley, on or before Dec. 31st, 1897.

THE Secretary-General of the late International Medical Congress at Rome, Dr. Maragliano, informs us that the official proceedings of the Congress will be ready for publication in April next—that is to say, in one year from the termination of the Congress—an unprecedented piece of expedition.

THE Secretary of State for India has appointed Brigade-Surgeon-Lieutenant-Colonel William Roe Hooper, of the Indian Medical Department, to be President of the India Office Medical Board, on the retirement of Sir Joseph Fayrer, K.C.S.I.

WE learn that no fresh symptom of importance has occurred during the last few days in Lord Randolph Churchill's condition.

Pharmacology and Therapeutics.

SULPHANILIC ACID IN ACUTE CATARRH.

ACCORDING to Dr. Valentin,[1] sulphanilic, or paranalinosulphonic, acid is an excellent remedy in acute catarrh. From thirty to sixty grains may be prescribed with a somewhat smaller quantity of bicarbonate of soda in ten times its weight of distilled water once or twice daily. The effect of a dose becomes apparent in about two hours, and the amelioration it produces may be expected to continue for a whole day or even more. When sulphanilic acid is taken for some weeks it does not appear to disorder the digestion or to produce any unpleasant effect, except, perhaps, slight diarrhœa.

TRIONAL IN SLEEPLESSNESS IN CHILDREN.

Trional, which is, chemically speaking, sulphonal with an additional ethyl group, has of late been used to a considerable extent by German practitioners in insomnia, especially that due to nervous and mental disease.[2] Its suitability for children has recently been pointed out by Dr. A. Claus of Ghent.[3] He finds that it is especially valuable in the nightmares or "night terrors" to which nervous children are so subject, and also where the sleeplessness is associated with chorea or convulsions. It does not disturb the mental, respiratory, or circulatory functions, and acts rather beneficially than otherwise on the digestion. It does

[1] Pharm. Post, quoted in Nouveaux Remèdes, Nov. 24th, 1894.
[2] THE LANCET, July 28th, 1894.
[3] Internationale Klinische Rundschau, No. 45, 1894.

not appear to be so suitable for alcoholic insomnia as chloral, and it has no analgesic action, so that it is of but little use to prescribe it when the sleeplessness results from pain. As to undesirable effects, in one case a child five years old, after a dose of 10 grains, was found the next day to walk unsteadily, the power of coördination being interfered with. The dose was diminished to 7½ grains, and no further trouble was experienced. These smaller doses were continued for a week, when the child was able to sleep in its usual manner. This was the only instance in which any unpleasant action was caused. The doses recommended by Dr. Claus are as follows: For children of less than twelve months of age, 3 to 6 grains; for those between one and two years, 6 to 12 grains; for those between two and six years, 12 to 18 grains; and for older children up to ten years, 18 to 23 grains. The powder can be given in warm milk, or, better still, in jam or honey, half an hour after supper, or at latest a quarter of an hour before bedtime. It may be prescribed nightly for some considerable time if necessary, as it does not appear to lose its effect when given continuously.

URICEDIN IN URIC ACID DIATHESIS.

Dr. Hugo Langstein of Teplitz-Schonau strongly recommends a preparation named "uricedin" in uric acid diathesis. This substance consists of citrate of potash and sulphate of soda, together with chloride of sodium and citrate of lithium. It is white and granular, and it dissolves in water. It was brought under the notice of the Twelfth International Medical Congress by Dr. Mendelsohn of Berlin, who stated that 300 grains might be taken daily without any ill effects and with very marked benefit to patients with uric acid diathesis. Dr. Langstein now writes[4] that he has employed it in fifty cases of gout during the last bath season, with excellent results. He considers that it is much more certain in its effects than the alkaline mixtures that are commonly prescribed or than mineral waters. It may be used in conjunction with the ordinary *régime* of baths and water-drinking at a German *Bad* such as Teplitz, and it is very useful as an after-treatment for the patient who has been to the baths in the summer to take during the succeeding winter. He was first led to employ this preparation in the treatment of his patients on account of the excellent results he had obtained with it in his own case. He had been suffering from increased uric acid in the urine associated with very severe smarting urethral pain for a long time, and had only been able to obtain temporary improvement from ordinary alkaline treatment and from a variety of mineral waters, and at last decided, with considerable misgiving, to make a trial of uricedin. At first he took 38 gr. per diem. The day after commencing this treatment he excreted more uric acid than usual, but on the third day the reaction was neutral, and no more uric acid was found for another week, after which a glass of beer brought it on. All this time the smarting pain in the urethra had continued, and then, as no calculus could be found to account for it, the daily dose was gradually increased until 150 gr. were taken. The pain then diminished in a very marked degree, and the uric acid secretion was only observed at times when the uricedin was discontinued.

DIPHTHERIA AND SERUM THERAPEUTICS.

EXPERIENCES OF THE TREATMENT.

DR. BAGINSKY, who, we believe, was one of the first to advocate the bacteriological diagnosis of diphtheria, contributes a paper[1] in amplification of his remarks in the recent debate at the Berlin Medical Society. He insists upon the careful study of each individual case subjected to serum treatment as of more value than statistics, which at present can only be based on small numbers. On the diagnostic value of the bacteriological test of the presence of the Löffler bacillus he has no doubt, and confirms the statement of the presence of the organism in cases not showing the symptoms of diphtheria, but none the less liable to transmit infection. He urges that if care be taken in the preparation of portions of membrane for cultivation the bacillus may be found in a larger proportion of apparently diphtheritic affections than has been averred. As regards the treatment, he says that he did not abandon his previous local and general measures when adopting it, but combined the old and new methods. The amount injected depended on the age of the subject and the duration of the disease prior to commencing the treatment, a larger dose being given to the cases coming later under treatment. He found, however, that no effect was produced in some cases, nor could it be expected; for these were cases in which the intensity of poisoning was so great as to irreparably affect the organs of the body before any antitoxin could operate, however early it was given. They are truly malignant cases, such as most infective diseases present—e.g., scarlet fever. Although he had given doses above the average he had seen no ill-effects produced, with one exception. Many patients had a trivial rash, some had also symptoms of joint inflammation. One of the cases which presented a rash died suddenly fourteen days after discharge from hospital with symptoms suggestive of cerebral embolism—an event which he had known to occur after diphtheria prior to the introduction of the serum treatment. As to nephritis, it was not more marked in these cases than in diphtheria as he had known it before; indeed, there was mostly less albuminuria and fewer casts in the serum-treated cases than he was wont to see. One patient, with cardiac complications, to whom the serum had not been given, had hæmaturia, possibly due to renal embolism, and in the case of another in whom diphtheria supervened in the fourth week of scarlet fever the nephritis abated after injection of serum. At the same time he thought attention should be paid to symptoms of cardiac failure, which seemed to be disproportionately frequent in the recent epidemic, for most of those dying under the treatment died from cardiac asthenia. He concludes by saying that it is too early yet to pronounce definitely uponthe value of the treatment.

Dr. Mya (Florence) has treated eighteen cases[2] with Behring's serum, with an average of two injections each. Of these, two were "pure anginal diphtheria" and recovered; five were "diphtheria with incipient croup," recovered; ten were "diphtheria with developed croup," in all tracheotomy was performed—two died; one of "croup associated with staphylococci and streptococci," fatal. He admits that the number is too few for statistical inference, but says the treatment is scientific and harmless, that it is antidotal, and not to be expected to remedy the changes already produced in the organs by the toxines.

NEPHRITIS IN DIPHTHERIA.

In the *Deutsche Medicinische Wochenschrift* (1894, No. 51) there are two papers on this subject. The first is by Dr. Troymann of Frankfort-am-Oder, who relates an instance of acute hæmorrhagic nephritis in a subject treated by the serum. This was one of twenty cases so treated in the Frankfort town hospital under Dr. Gläser, and among them albuminuria was frequent. The child was eight years of age. Treatment commenced on the third day of illness, injections being repeated on the two following days. Two days later the membrane had disappeared, but within a week it reappeared and another injection was given. This was followed by a rash and albumen in the urine, which contained blood and casts. But four days later the urine was free from albumen. It is pointed out that the time at which the nephritis appeared seemed to throw doubt on its being due to the diphtherial virus. But it is noteworthy that a fortnight after his discharge from hospital the child came back with well-marked palatal and limb paralysis.

The other paper is by Dr. Schwalbe, one of the editors of the journal, who gives a parallel case in a child, occurring in 1890, at Friedrichshain Hospital, and therefore before the serum treatment was in vogue. He points out the great frequency of albuminuria in diphtheria, the rarer but not unknown occurrence of acute nephritis, and deprecates the tendency to attribute to remedies on their trial the supervention of complications which, though rare, are known occasionally to arise under any treatment.

[4] Prager Medicinische Wochenschrift, No. 45, 1894. Quoted, Allgemeine Medicinische Central-Zeitung, No. 95, 1894.

[1] Berliner Klinische Wochenschrift, 1894, No. 52.

[2] Lo Sperimentale, Dec. 1st, quoted in Wiener Medicinische Blätter, 1894, No. 50.

MEDICAL MAGISTRATE.—Mr. William Bridgett Pritchard, L.R.C.P. Lond., M.R.C.S., has been placed on the Commission of the Peace for the city of Manchester.

THE LANCET

SPECIAL ANALYTICAL AND SANITARY COMMISSION

ON THE

INCANDESCENT SYSTEM OF GAS LIGHTING.

THE idea of utilising coal gas for illuminating purposes was first carried into effect by Murdoch in 1792, but he could not have entertained the slightest conception of the enormous industry which this system of lighting, which was also demonstrated in London at the close of the last century, was destined to become long before the end of the succeeding century. So crude, however, was the gas first employed for this purpose that the evolution of injurious products of combustion from it, due chiefly to foul sulphur compounds, threatened to extinguish the system at its very inception. But the introduction of improved methods of purification and production saved it from so untimely an end, and spared the life of an industry which is now well-nigh indispensable to the existence of the civilised world. It is interesting to reflect how even medicine, if coal-gas lighting had not been established, would have been bereft, possibly to the present day, of many of its valuable agents. What antiseptics, for example, are more largely employed or more highly valued in the treatment of disease than the series of phenols obtained exclusively from coal tar? or what more valuable antipyretics, &c., are at the physician's disposal than those which coal-tar products have furnished? And what study, again, more than that of these interesting derivatives has given greater impetus to pharmacology in adding to our knowledge of the constitution and structure of bodies and so enabling us to make remedial measures more scientific and exact? Again, our eyes would never have beheld the endless series of beautiful colours made from coal-tar products; and how different would have been the complexion of everything connected with fabric had not coal tar provided us with a starting point from which these things have been obtained? To the idea of utilising coal gas as an illuminant, therefore, we owe all these benefits; and just as at one time coal gas was the only product of the destructive distillation of coal upon which any value was set—whereby, in consequence, so many valuable by-products were lost—so now investigators have been led to inquire as to whether, by existing methods of lighting, we realise the full value of coal gas as an illuminating agent, or, in other words, whether we extract by present methods all the radiant energy or light which it is capable of giving.

It is well known that coal gas is luminous when it burns because it contains certain hydrocarbons, but that, in order to get the maximum illuminating power from it, burners of special construction must be employed. It is only, however, within quite recent years that any really serious attention has been devoted to the improved structure of gas burners with the object of utilising to the fullest extent the luminosity which the mere burning of coal gas by itself affords. Types of these are illustrated in the steatite batswing or fishtail burner, the Argand, and regenerative burners, all of which yield a more or less brilliant light, rich in red and yellow rays, which, as is characteristic of coal gas flames, possess a strong diffusive power. These all require, however, a gas of definite illuminating value, which may be referred to the presence of hydrocarbons, chiefly of the paraffin and olefine series. The illuminating value of coal gas varies with a number of conditions, as, for example, the kind of coal employed, the temperature used in distilling it, and so on; but the coal yielding the highest illuminating value is Newcastle Cannel (so called because it gives a gas up to the candle power prescribed by Parliament). Now that the supply of this variety of coal is sensibly diminishing, and the demand for coal gas steadily increasing, other coals are used, and the purified gas obtained from them is subsequently enriched with water gas, impregnated with highly luminous "oil" gas. This, as we shall presently see, is an important point when we come to consider the principles underlying the working of the incandescent burner, which has recently undergone considerable alteration and improvement. Indeed, so rapidly is the incandescent system of gas lighting being introduced amongst us, so popular is it becoming on the score of its economy and better illuminating power, that the importance of an investigation into its merits from the health point of view cannot be questioned. We propose, therefore, in the present article to deal chiefly with this aspect of the new system, but we may add a concise account of its history, and more especially of the way in which its essential parts are constructed, since there are involved in the various stages of its structural progress several highly scientific processes of a pretty as well as interesting kind.

Curiously enough, the incandescent gas-burner had its origin in the attempts of Auer von Welsbach to discover a substitute for the carbon filament of the incandescent electric lamp, which would incandesce in air without being destroyed or burnt, and thus to obviate the necessity of enclosing the filament in a globe exhausted of air. How far these attempts were successful we do not know, but the "mantle" composed of rare earths, which is the essential feature of the present burner and which incandesces so brightly in the atmospheric gas flame (Bunsen's burner), was, we imagine, not the least fruitful result of the investigation, judging from the satisfactory progress which has lately been made with it. The incandescent gas-burner, when complete, may be said to consist simply of two essential parts (Figs. 1 and 2); the first an ordinary but carefully adjusted burner of

FIG. 1.

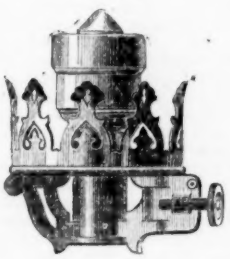


FIG. 2.

the Bunsen type, in which air is mixed with the gas before it burns—generally in the proportion of 30 of gas to 70 of air—producing a substantially colourless or slightly blue flame; the second a mantle (Fig. 2), composed of certain rare earths prepared with the utmost care and skill, which is suspended in the flame to the best advantage (Fig. 3) by means of a forked support of magnesian silicate, itself luminous when hot. The flame and mantle are enclosed in a chimney of glass or other transparent vehicle, as seen in Fig. 4, which, though not absolutely essential for the production of light,

effectually serves to protect the fragile mantle from accident, while at the same time it keeps the flame perfectly steady. The mantle is prepared by the following very interesting process. A cotton thread is first woven into a tubular shape in network form, washed previously in diluted ammonia, to remove grease, and then in water containing a little hydrochloric acid, and finally in distilled water, and dried. The knitting is next cut up into suitable lengths, a piece of net sewn round one end of it to form the top, and then saturated with a solution containing the nitrates of the rare earths, zirconium, lanthanum, thorium, and cerium, and dried on glass rods. An asbestos thread is then passed through the top of the mantle, forming a loop to attach the mantle to the support. The lanthanum and zirconium contribute whiteness to the light, and the thorium a bluish-white light, and the cerium a red, which adds to the diffusive power of the light. One of the sources from which the oxides employed are obtained is *monazite*, which yields thorium, lanthanum, cerium, and didymium. Orthite is another source from which cerium and didymium are obtained. Most of these minerals are said to come from Norway; but they are now found, with the exception of *thorite*,

FIG. 3.

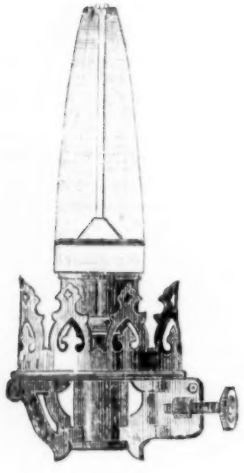
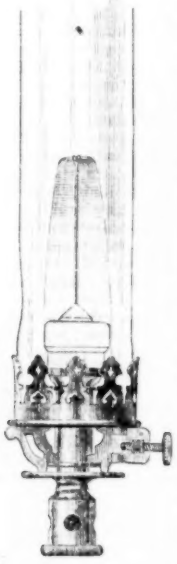


FIG. 4.



in large quantities in America. The mantle is drawn into shape by being pulled over a model of the desired form, and the flame of a Bunsen burner is afterwards applied to the upper portion of the mantle, which, catching fire, burns slowly downwards, shrinking considerably in length as the cotton burns away, leaving a thin network skeleton of the oxides of the metals, which, on being placed in the flame of a Bunsen burner, becomes at once incandescent, emitting a bright steady light. After holding the mantle over the Bunsen flame for a few minutes to get it into shape, it is "seasoned" by burning it over a high-pressure burner, and finally dipped in a solution of collodion, dried, and placed in boxes, when it is ready to be sent out. The film of collodion serves to strengthen the mantle for transit purposes. It is readily burnt off by placing it upon the support on the burner, and lighting it with a somewhat reduced flame before the chimney is put in position. In a few minutes it is completely burnt off, and the chimney may be placed over it.

"Incandescence" is the brilliant glow given out by certain refractory bodies when they are heated up to a definite point. It is the partial conversion of heat into light rays.[1] A platinum wire held in the Bunsen flame becomes first invisibly hot, then partly visibly hot or red hot, and finally white hot, when it incandesces, or emits powerful white light rays. The luminosity of the coal-gas flame, it may be remarked, is really due to the incandescing particles of carbon which are set free from the acetylene derived from the decomposition of the hydrocarbons of the gas during the stages of combustion. Thus the series of changes taking place in luminous flames are explained by Professor Vivian Lewes in the following interesting, and probably correct, way. In the inner zone of the flame the constituents of the gas undergo various decompositions and interactions, which culminate in the conversion of the heavier hydrocarbons into acetylene, carbon monoxide being also produced; and these, with the products of combustion and residual hydrogen, pass into the next phase of action. Here the acetylene formed in the inner zone becomes decomposed by heat with liberation of carbon, which at the moment of production is heated to incandescence by the combustion of the carbon monoxide and hydrogen and gives luminosity to the flame. Since, then, the luminosity of the coal gas flame is due to incandescing particles of carbon set free in the flame, and which are subsequently burnt up, and the light of the electric incandescent lamp consists of incandescent rays emitted by the carbon filament which is heated by the electric current, it follows that the nature and character of the light from both are the same. Thus, compared with the electric arc light both exhibit a reddish-yellow tinge, and both possess a higher degree of diffusive power than the pure white light itself.

In the Welsbach burner, on the other hand, the incandescence is due to the heating of a network of oxides of certain rare earths, which emit at the temperature of the Bunsen flame a bright, steady, and powerful white light. It affords, in fact, an admirable illustration, and is probably the best result ever obtained, of the conversion of heat into light rays. Thus, the Bunsen flame is very hot, possessing no luminous value, but by allowing it to play upon certain refractory and resisting bodies the heat undergoes a metamorphosis into the closely allied phenomenon of light. It is the production of radiant energy at the expense of calorific energy. In considering the Welsbach burner from the health standpoint, and bearing in mind the principles just laid down, we may regard it as consisting simply of an ordinary Bunsen burner over the flame of which is suspended a network of incombustible material that is intensely light-giving when raised to the temperature of the Bunsen flame.

First, then, let us consider the Bunsen burner, or, what is the same thing, the Welsbach burner without its mantle. It is well known that the conditions of combustion in the Bunsen or atmospheric burner are more favourable, and the formation of complete products more certain, than in the luminous flame. The Bunsen flame, for example, is without luminosity because "experiments show that the nitrogen acts in the normal flame by so diluting and protecting the hydrocarbons that a far higher temperature is needed for their decomposition; and this action gives time for the oxygen of the air to consume them, without liberation of carbon, and hence without luminosity" (Lewes). In the luminous gas flame, however, as already explained, the decomposition of acetylene occurs in the outer zone, giving rise to heated and therefore luminous particles of carbon, so that it is extremely probable that traces of this gas, as well as carbon monoxide, are given off from this flame—an anticipation which delicate analyses confirm. The changes in the atmospheric burner are not only more complete by the introduction of air, but they occur at an earlier stage. In Table IV. will be found the results of certain experiments in which various burners, including the luminous and non-luminous, were tested side by side with the view at the outset of deciding this important point. Subsequently we shall deal with this at greater length; suffice it to mention here that the results were decidedly in favour of the atmospheric or Bunsen burner.

The complete combustion of a definite volume of coal gas

[1] It should be mentioned that there are other systems in use which depend upon the light emitted by an incandescing body. In the Clamond system of incandescent gas lighting, for example, a basket or hood of magnesia and zirconia is employed, which is heated to incandescence by an atmospheric burner of peculiar construction, whereby the gas and air are heated before combustion takes place. In the Lewis system, again, a small hood of platinum, or alloy of platinum and iridium, is used, which is brought to incandescence by the Bunsen burner, in which the air is admitted under pressure. In the Sellon system a cone of metal gauze is used, and heated with a Bunsen burner of similar construction to the last. Lastly, there is the system of Falmehjelm, a Swedish chemist, which is in extensive use, and in which small pencils of magnesia, or a mixture of magnesia and zirconia, are attached to a small frame in the form of a comb, which is suspended over the flame of a water gas-burner, and is immediately brought to a high state of incandescence.

must, of course, on theoretical grounds, give rise to the production of exactly the same amount of burnt gases in whatsoever burner the gas is burned. Obviously a cubic foot of gas burned completely in a batswing, Argand, or atmospheric burner would give, as end products, the same amounts of carbonic acid and water. It follows, therefore, that if the consumption of gas be low the evolution of products will be proportionally reduced, so that, apart from the economical point of view, a burner that consumes a relatively small amount of gas, to say nothing of the superior light it may yield, must be preferable on that account from the hygienic point of view. This, therefore, is exactly what is secured in the Welsbach burner by reason of the employment in it of an atmospheric burner which consumes at the most, but generally less than, four cubic feet of gas per hour. The indisputable hygienic advantages thus gained are strikingly illustrated in Table I., the results of which are based upon the varying rates of consumption of different burners. The amount of combustion products yielded by oil lamps in the same time makes an interesting and instructive comparison.

TABLE I.—*Calculated Relative Quantities of Carbonic Acid Gas (CO_2) produced by different Burners, based on 1 cubic ft. of Coal Gas giving 0·52 cubic ft. CO_2.*

Burner.	Consumption in cubic feet.	Cubic ft. of CO_2 evolved per hour.	Number of human adults producing same amount of CO_2 per hour.*
Welsbach (atmospheric burner) ...	3·5	1·82	3·03
Argand	6·0	3·12	5·20
Bray, No. 5 batswing...	6·0	3·12	5·20
Belge oil lamp (16 candle power)	2·08 oz. oil per hr.	2·91	4·85
Hinks' duplex (candle power undetermined)	2·90 oz. oil per hr.	4·00	6·66

* Based on one human adult exhaling 0·60 cubic foot CO_2 per hour.

Thus, calculating on the quantity of carbonic acid gas expired hourly by the human adult and on the quantity produced on burning a known quantity of coal gas or of oil, we find that while the Welsbach burner, consuming 3½ cubic feet per hour, would be equal to the exhalation of at least three persons, other forms of burners are equal to over five persons, while an oil lamp of 16 candle power would also be nearly equal to five individuals, and another oil lamp of increased candle power, which is very generally in use, to a number of individuals approaching seven—that is to say, more than double the equivalent given by the Welsbach light. These results are not entirely speculative, and we may proceed to describe some experiments we made with the view of putting them to practical test. The results are contained in Table II., which hardly needs explaining. The experiments were made in a very small room, 10 ft. long, 10 ft. high, and 6 ft. wide only, the usual crevices having first been closed. The amount of carbonic acid and the temperatures at two points—one just beneath the ceiling and the other at breathing level—were ascertained before the experiment, and repeated at intervals of an hour each after the burners had been lighted, the experiment being stopped after three hours. Two burners were fixed on the walls at a height of 6 ft., and were 9 ft. apart in opposite corners—that is, at each end of the diagonal. These conditions represent, of course, a very extreme and exaggerated case, owing to the size of the room and the use of two burners in it, but the trials were strictly comparative, and the errors introduced in the analyses and observations were reduced in proportion as the products were greater and the rise of temperature higher. In the last experiment an oil lamp was placed upon a table 3 ft. high, as this was considered to represent the actual conditions of practice. The lamp was carefully weighed before and after the experiment, the difference in weight giving, of course, the amount of oil (kerosene) consumed.

The results are of extreme interest and importance in regard to the health aspect of the case. The relative vitiating and heating effects of several types of burners are best seen, however, in Table III., which we shall deal with presently. To return to Table II., the chief points calling for notice are as follows: the relative effects of a Welsbach burner with and without a mantle are especially instructive, as affording some information of distinct value as to the chief differences caused by the introduction of a mantle into the flame. The sum total products should of course be the same, since the amount of gas consumed was the same. The mean amount of CO_2, as a matter of fact, was, as the table shows, as nearly as possible identical. But by the introduction of the mantle into the flame it is evident that there occurs a concentration of the CO_2 close to the ceiling, while there is, as we should expect, a corresponding and very decided diminution at the breathing level. We conclude, therefore, that the plain Bunsen flame (enclosed in a chimney) produces a quicker and more decided distribution of the burnt

TABLE II.—*Vitiating and Heating Effect of Various Burners in a Room 10 ft. Long, 10 ft. High, and 6 ft. Wide.*

Burner (6 ft. from floor).	Carbonic acid (CO_2) contained in 10,000 volumes of air.				Temperature in degrees Fahrenheit.				Consumption of gas in cubic feet per hour.
	Original air.	After one hour.	After two hours.	After three hours.	Original air.	After one hour.	After two hours.	After three hours.	
Two Welsbach—									
(*a*) At 1 ft. below ceiling	6·0	67·2	77·9	80·5	53·0	68·0	76·0	81·0	7
(*b*) At breathing level	6·0	10·5	17·0	18·2	53·0	59·0	63·0	65·0	
(*c*) Mean result	6·0	38·8	47·4	49·3	53·0	63·5	69·5	73·0	
Two Welsbach without mantles—									
(*a*) At 1 ft. below ceiling	6·0	54·9	56·5	63·1	53·0	75·0	78·0	80·0	7
(*b*) At breathing level	6·0	23·2	36·8	32·9	53·0	63·0	64·0	65·0	
(*c*) Mean result	6·0	39·5	46·6	48·0	53·0	69·0	71·0	72·5	
Two Argand—									
(*a*) At 1 ft. below ceiling	6·0	93·1	117·6	119·0	53·0	79·0	84·0	89·0	12
(*b*) At breathing level	6·0	38·6	48·6	50·2	53·0	65·0	68·0	72·0	
(*c*) Mean result	6·0	65·8	83·1	84·6	53·0	72·0	76·0	80·5	
Two Batswing Bray, No. 5— ...									
(*a*) At 1 ft. below ceiling	6·0	84·1	108·2	115·7	53·0	78·0	89·0	95·0	12
(*b*) At breathing level	6·0	37·6	46·6	47·4	53·0	59·0	65·0	69·0	
(*c*) Mean result	6·0	60·8	77·4	81·5	53·0	68·5	77·0	82·0	
One Belge oil lamp, 16-candle power (on table 3 ft. above floor									
(*a*) At 1 ft. below ceiling	6·0	38·7	48·1	53·6	53·0	62·0	65·0	66·0	2·08 oz. per hr.
(*b*) At breathing evel	6·0	23·7	35·3	44·5	53·0	59·0	61·0	63·0	
(*c*) Mean result	6·0	31·2	41·7	49·0	53·0	60·5	63·0	64·5	

gases or products in the room, owing, no doubt, to the greater freedom of space around the flame and the consequently increased draught up the glass chimney. On this explanation the introduction of the mantle into the flame would naturally reduce the rate of draught through the chimney. The same is true of the temperature, which after the first hour was raised by the Welsbach burner with its mantle only 6° at breathing level, but in the case of the burner without the mantle it was raised 10°. Indeed, the increase of temperature, as might be expected, appears *pari passu* with the carbonic acid. So far, then, the Welsbach burner is distinctly more satisfactory in its effects upon the air of a room at breathing level than even the plain atmospheric burner. When we look at the effects of the Argand and batswing burners, of course the carbonic acid and temperature increase enormously in accordance with the greater consumption of gas. The Argand vitiates the breathing level somewhat sooner than the batswing, in consequence, no doubt, of the impetus given to circulation by the use of a chimney. This is true also of the increase in temperature. Finally, the oil lamp effects a gradual and general distribution of both the heat and carbonic acid produced, the amount of these being the same both at the ceiling and breathing level. It should be observed in addition, however, that though with the oil lamp, as might be anticipated, the rise of temperature is not so great as two Welsbach lamps (the proportion of hydrogen in oil, the chief heat-producing constituent of coal gas, being relatively small), yet the mean amount of carbonic acid produced was almost exactly the same after three hours; so that the vitiation of air with carbonic acid gas by one Welsbach burner giving over 50 candle power light and consuming 3½ cubic feet of gas is less than one-half that produced by an oil lamp of 16 candle power, and consuming a little over 2 ounces of oil. We have here a striking fulfilment of the requirements of theory in Table I., and therefore some distinct evidence of the accuracy of the experiments.

Looking now at Table III., we see at a glance the merits of the Welsbach burner contrasted with various other burners from the point of view—i.e., the hygienic—which prompted the present inquiry. We cannot ignore the fact, in the light of the results contained in this table, that, quite apart from economy of gas and the increased light value secured, the Welsbach burner affects the atmosphere far less for evil, judging from the carbonic acid and heat, than any other existing type of burner. Thus, while the increase of carbonic acid per candle power is only 0·365 in the case of the Welsbach light, it is 1·9 in the case of the Argand, 2·86 in the batswing, and 1·56 in the oil lamp; and the increase of temperature with a Welsbach burner per candle power is only 0·116°, compared with the Argand, 0·59°, the batswing, 0·807°, and the oil lamp, 0·468°. (In this estimate the candle power of the Welsbach is taken as low as 45 candles, whereas it reaches frequently as high, as will be seen later, as 60 candles). The figures in the two columns at the right of the table should obviously accord with each other, since the increase of carbonic acid and of temperature should be the same for the same quantity of gas consumed. As a matter of fact, the figures coincide fairly well; at least, they are as close as the conditions of the experiments may be expected to allow. We therefore find in these figures further reason for believing that the general results are trustworthy.

In the experiments above described we have purposely omitted searching for unburnt gases, such as carbon monoxide or acetylene, which, if found, howbeit in small traces, would afford emphatic ground for objection to the general adoption of a burner from which these poisonous products are shown to escape. We preferred to exaggerate the ordinary conditions under which a burner is used still more than before, so as to focus any possible impurities of this sort, and in order to be quite sure that even the smallest traces would not escape our tests. The experimental procedure of this section of the inquiry was as follows. The burners (in the case of the Welsbach two in number, but of the rest only one) were lighted and placed in a small chamber 3 ft. 1 in. × 3 ft. 1 in. × 2 ft. 4 in. (with no provision for any appreciable ventilation or outlet for the gases) for eight hours, during the whole of which time the air taken from above the burners was aspirated first over potash and soda lime to remove carbonic acid and sulphur compounds, then through sulphuric acid to remove ammonia, and, finally, through a dilute solution of blood. At the end of eight hours the experiment was stopped, and the blood examined with a delicate spectroscope. To preclude any doubt whatever as to the presence of carbon monoxide the blood was further treated in the following manner. Fresh air was caused first to pass through a solution of palladium chloride to remove organic or other chance impurities, then through the blood, the temperature of which was gradually raised by means of a water bath, and, finally, through a third tube containing chloride of palladium. Any carbon monoxide absorbed by the blood during the aspiration of the combustion gases would thus be displaced and would cause a darkening in the palladium solution due to separation of the metal. Acetylene was also searched for, the solution of ammoniated silver nitrate being employed for the purpose. The results obtained are given in the following table (IV.), in which two Welsbach burners (total consumption 7 ft.) were compared with one each (consumption 6 ft.) of the other types.

TABLE III.—*Increase of Carbonic Acid and of Temperature per Candle Power.*

Burner.	Consumption.	Candle power.	Mean increase of temperature in one hour.	Increase of temperature per candle power.	Mean increase of CO_2 in one hour, parts per 10,000.	Increase of CO_2 per candle power.	Increase of CO_2 per cubic ft. of gas consumed.	Increase of temperature per cubic ft. of gas consumed.
Two Welsbach	7	50+40	63·5 − 53 = 10·5°	$\frac{10·5}{90·0}$ = 0·116°	32·8	$\frac{32·8}{90}$ = 0·365	4·8	1·5°
Two Argand	12	16+16	72 − 53 = 19°	$\frac{19}{32}$ = 0·590°	60·0	$\frac{60·0}{32}$ = 1·900	5·0	1·5°
Two Batswing, Bray, No. 5.	12	9·6+9·6	68·5 − 53·0 = 15·5°	$\frac{15·5}{19·2}$ = 0·807°	55·0	$\frac{55·0}{19·2}$ = 2·86	4·6	1·3
One Belge Oil Lamp	2·08 oz. oil per hour	16	60·5 − 53·0 = 7·5°	$\frac{7·5}{16}$ = 0·468°	25·2	$\frac{25·2}{16}$ = 1·56	—	—

TABLE IV.—*The Results of Tests with various Burners for Carbon Monoxide (CO) and Acetylene (C_2H_2) in the Products of Combustion.*

Burner.	Blood test (carbon monoxide).	Palladium chloride for carbon monoxide in previous blood.	Ammonia silver nitrate test for acetylene.
Two Welsbach burners without mantles = atmospheric burner, consumption 7 cubic feet per hour	Negative.	Negative.	Negative.
Two Welsbach burners (complete), consumption 7 cubic feet per hour	Negative.	Negative.	Negative.
One Argand burner, consumption 6 cubic feet	Negative.	Negative.	Negative.
One Bray batswing, consumption 6 cubic feet	Slight indication.	Slight indication.	Doubtful.

It will be seen that, except in the case of the batswing, no distinct evidence of undesirable products in the burnt gases

was found. Even when the gases were aspirated for hours straight from the chimney of the Welsbach burners, neither of the poisonous gases carbon monoxide or acetylene could be detected. The Argand burner gave the same satisfactory results.

Finally, Table V. deals with the relative illuminating power of various burners and the loss of light sustained by the use of tinted and other chimneys with the Welsbach burner. The light of the Welsbach burner is intensely white and brilliant, being equal, for only 3½ cubic feet of gas consumed, to a maximum of 60 candles and a certain average of 45 candles. (It should be observed, as is shown in some instances in Table V., that no advantage in light is gained by running the gas at a higher speed; on the contrary, by frequently reducing the gas an increase of luminosity is obtained.) For some purposes it is desirable to reduce this intensity so as to make it less affecting to the muscles of accommodation of the eye. A diminution of light may be produced, and also an alteration in its tone, according, of course, to the kind of chimney used. This loss is given in Table V., and, although it amounts to some considerable extent, yet it still gives a greater luminosity than other burners, and for a much smaller consumption of gas. The ruby chimney gives a light of twenty-seven candles,

TABLE V.—*Relative Illuminating Power of various Burners, and the Loss of Light Sustained by the Use of Tinted and other Chimneys with the Welsbach Burner.*

Burner.	Pressure in inches.	Consumption, cubic feet.	Candle power, pentane units.	Efficiency, candle power per cubic feet per hour.	Loss, candle power, due to chimney.	Loss of efficiency per cubic foot.
Bray, Batswing, No. 3	1·0	5·0	4·7	0·94	—	—
Bray, Batswing, No. 4	1·0	5·3	6·0	1·13	—	—
Bray, Batswing, No. 5	1·0	6·0	9·6	1·60	—	—
Bray, Batswing, No. 6	0·9	7·2	11·0	1·53	—	—
Bray, Batswing, No. 7	0·9	7·2	15·0	2·08	—	—
Bray, Batswing, No. 8	0·9	8·0	19·0	2·37	—	—
Standard Argand	0·8	4·5	16·0	3·55	—	—
Ordinary Argand	0·8	5·0	15·8	3·16	—	—
Welsbach (new) glass chimney	1·0	4·0	60·0	15·00	—	—
Welsbach (new) glass chimney*	1·0	3·0	60·0	20·00	—	—
Welsbach, three months in use	1·0	4·0	40·0	10·00	—	—
Same	1·0	3·0	40·8	13·60	—	—
Welsbach, with mica chimney	1·0	3·5	56·0	16·00	4·0	1·01
Same	1·0	3·0	50·0	16·60	10·0	3·33
Welsbach, with amber glass chimney	1·0	4·0	52·0	13·0	8·0	2·00
Welsbach, with ruby chimney	1·0	4·0	27·0	6·75	33·0	8·25
Same	1·0	3·0	30·0	10·0	30·0	10·00
Welsbach, with red chimney	1·0	3·0	50·0	16·66	10·0	3·33
Same	1·0	4·0	60·0	15·0	—	—
Oil lamp (Belge)...	—	2·08 oz. oil	16·8	—	—	—

* This burner was used in the remaining experiments.

which in appearance approaches the Argand gas flame very closely, while the mica chimney, though absorbing a small amount of light, is unbreakable. It may be freely recommended for general adoption, therefore, as likely to prolong the life of the mantle and to dispense with the really serious inconvenience of the breaking of the glass chimney. The glass rod chimney is an excellent device for producing a good dispersive effect. Like the electric arc light, the Welsbach incandescent light is very rich in the violet or active chemical rays of the spectrum, and it has consequently a low diffusive power; but, on the other hand, it serves very effectually as a source of artificial light for photographic purposes. It is also excellently well adapted for the illumination of objects on the microscopic slide and for certain operations in analytical chemistry in which change of colour is taken to indicate chemical change. Owing, again, to its extreme brilliancy it proves an excellent search-light for the exploration of the larynx, fauces, or nasal cavities. Lastly, the photometric measurement of a mantle that had been three months in constant use is interesting as showing how satisfactorily the illuminating power is maintained.

In considering, in conclusion, the systems of artificial lighting that are in vogue at the present time, the incandescent system of electric lighting must, of course, rank first from the point of view of health, since it affords a soft, agreeable light, without giving rise to any vitiation of the air; there is no combustion, and consequently there are no products of combustion, complete or incomplete. From the same point of view we are bound to place next, in the face of the result of our present inquiry, the incandescent gas light in its improved form. It is even less productive of carbonic acid gas than the average oil lamp, and consumes not quite one half less gas than the existing type of burners, giving rise, therefore, to the evolution of half the heat and half the amount of carbonic acid gas, while its illuminating power expressed in candles is more than three times as great as the best ordinary gas-burners or the incandescent electric lamp, each of which does not generally exceed 16 candle-power, unless a very great expense is no object to the consumer. We are far from saying that the incandescent system of gas-lighting has attained to the highest pitch of perfection; still we are well within bounds when we regard it as the system of gas lighting which utilises most efficiently and most economically the full powers or duty of coal gas as an illuminating agent. Some have expressed fears that the burner is a delicate instrument—much too delicate—for the part it is destined to fulfil; but we have found with ordinary care—and care is well worth a little exercise in view of the enormous advantages the system affords—that these fears need not exist. We understand that in practice the average life of a mantle, taking risk of breakage into consideration, is between three and six months, but the mantles have been frequently known to last over a year, at the end of which time their lighting efficiency was still good. One more important point, already slightly touched upon, is that, in spite of its high illuminating powers, this burner does not require a gas possessing any special illuminating value itself; and as it is the maintenance of a high illuminating value which contributes in a large measure to the cost of coal gas, the general adoption of the incandescent system of gas lighting would probably lead to the production of a cheaper gas—possessing little illuminating power, but adapted equally well for the incandescent gas-burner—which would then contrast more favourably with coal as regards cost for heating purposes. The production of a cheaper gas since the introduction of the incandescent system of lighting has, we believe, engaged the serious attention of engineers, chemists, and others, and we may expect to hear more on this important question before very long. To hygienists this is an extremely important aspect of the incandescent gas system, inasmuch as it is obvious that the introduction of cheaper gas, by its more extensive employment for fuel, would tend to free London from the reproach of being a city which, during the greater part of the winter, is enveloped in vilely suffocating fogs. There is therefore, we think, a future for the new system of far-reaching importance to the community.

THE LANCET LABORATORY.

THE HOUSING OF THE POOR AT BUDAPEST.

WHAT THE INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY DID NOT SEE.

(FROM OUR SPECIAL CORRESPONDENT.)

AT Budapest, or rather at Pest, there are some magnificent buildings in broad and lengthy streets. In the neighbourhood of the Hungarian capital there are men of great wealth, who possess splendid estates. The members of the International Congress of Hygiene and Demography, who recently met in that town, were shown all the beautiful public monuments, the various institutions, colleges, theatres, &c., and were entertained with princely hospitality at the seats of the nobility living near the capital. This was all very well in its way and very pleasant, but the Congress was supposed to gather together men earnest in the cause of sanitary reform.

The Hungarians are an intensely patriotic people; but unfortunately their patriotism is so exaggerated that it degenerates into Chauvinism. Thus everything that could, even by a stretch of imagination, be construed as creditable to the Hungarian nation was proudly shown to the members of the Congress. This gratifying task was so well accomplished that not a few, even among the most prominent of the foreign delegates, actually went away with the impression that Budapest was a well-administered and healthy town! Certainly statistics were given that prove a very different state of things, but these were lost in the crowd of communications, and nothing was done to bring them home to the delegates. If, however, such congresses meet, not in the most convenient town, but in various towns and countries, it is for the purpose of strengthening the cause of sanitary reform in these different and distant centres. On such occasions the local sanitary reformers have a splendid opportunity of laying bare the sanitary defects which they are seeking to remedy and adding to the force of their own reclamations the opinion of eminent hygienists from all parts of the world. Now Budapest stands out among the capitals of Europe as one of the very worst towns that exist in respect to the housing of the working classes and of the poor. This grievance prevails in all great centres of population, but is especially acute at Budapest; consequently it was natural to imagine that one of the first objects of the organisers of the Congress would be to conduct the members into the cellar dwellings, the overcrowded tenements, and the slum property of Budapest. These visits could have been followed by such a debate and by the adoption of resolutions of so conclusive a character as to thoroughly awaken the conscience of the country and compel the Government and municipality to take action. Thus the holding of the Congress at Budapest might have helped to improve the condition of the homes of the poor, and such a result would have rewarded the effort of travelling so long a distance. Nothing of the sort, however, was done; and though, in one of the numerous Sections, Dr. Josef Schwartz of Budapest formulated a most substantial and conclusive impeachment of the town of Budapest, the Sections for the most part were so poorly attended that many communications read to them found no echo. Even the voice of Dr. Jacques Bertillon was lost in the wilderness of innumerable papers, speeches, and Sections; yet what this most eminent demographer stated was startling enough, and had the facts been generally known to the Congress many members would have suggested the advisability of making investigations while on the spot. Dr. Bertillon stated that in 1891 the population of Paris amounted to 2,424,705 persons, and out of these people 331,976, or 14 per cent., were living in overcrowded houses or lodgings. In 1885 there were 1,315,387 people in Berlin, of whom 363,960, or 28 per cent., were in overcrowded tenements, &c. For Vienna in 1891 the figures of the population were 1,364,548, of whom 387,000, or 28 per cent., were in overcrowded dwellings. At Moscow in 1882 there was a population of 750,867, of whom 236,649 or 31 per cent., were in overcrowded dwellings. At St. Petersburg in 1890 there were 956,226 inhabitants, of whom 442,508, or 46 per cent., were suffering from overcrowding. But what shall we say of Budapest? Will it be believed that this beautiful town, about which such praise was sung at the Congress, is not only more, but much more, overcrowded than the worst of the towns just mentioned? Yet Dr. Bertillon submitted to the Congress figures showing that in 1881 Budapest had 360,551 inhabitants, of whom 250,601 were living in overcrowded houses. This gives the enormous proportion of 71 per cent. of the inhabitants of Budapest as suffering from the effects of overcrowding, and makes out that the capital of Hungary is in a much worse condition than even the two capitals of Russia. Of course there are exceptional circumstances that account for the exceptionally unfavourable position of the inhabitants of Budapest. The town has developed and the population increased so rapidly of late that it has been appropriately described as the Chicago of Central Europe. Eager to profit by this growing prosperity, vast multitudes (notably of workmen and labourers) have thronged to the capital, thus crowding all available dwellings. Not only are the homes of the poor in a deplorable condition, but the rents charged are exorbitantly high.

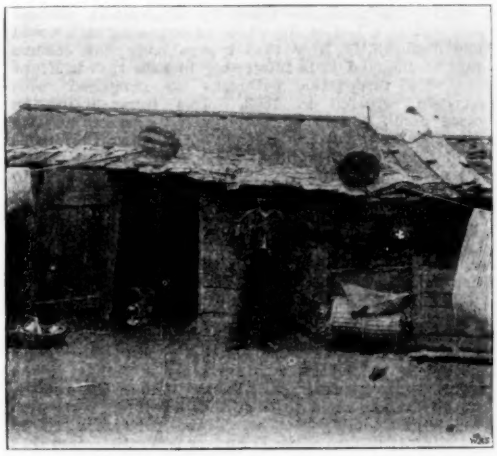
Dr. E. Philippovich, Professor of National Economy at the Vienna University, in his "Archiv für Sociale Gesetzgebung und Statistik," finds that the average rent for dwellings at Vienna, consisting of one single room, is 59·99 fl. per annum. This is equal to an annual rent of 5·40 fl.[1] per square metre of floor surface, or 1·73 fl. per cubic metre of space. For two-roomed tenements the rent is proportionately cheaper—namely, 97·80 fl., or 4·08 fl. per square metre and 1·47 per cubic metre. For three rooms the rent was still cheaper—namely, 145·75 fl., or 3·71 fl. per square metre and 1·31 fl. per cubic metre. Dr. Schwartz calculates that at Budapest the average rent for one room is 122 fl., or 8·40 fl. per square metre and 3·07 fl. per cubic metre. The two-roomed tenement is set down at 144 fl., or 6·37 fl. per square and 2·35 fl. per cubic metre. Thus it will be seen that the rents charged at Budapest are very much higher than the already extravagant rents of Vienna. The above figures submitted to the Congress, but scarcely noticed by its members, led me to make a personal investigation. I appealed to Dr. Josef Schwartz, as the author of the most remarkable paper on the subject, and he very obligingly devoted two or three days to taking me round some of the worst districts of Budapest. First we went to a place called the New Watch House, on the outskirts of the town, where there need not have been any overcrowding as there was much waste space around and a considerable amount of land was not yet built upon. Here were a series of houses divided into tenements, forming large inner courts and various kinds of buildings, including even an artist's studio. Under the main entrance there was a horrible stench coming up between loose planks that were placed over an open drain. This entrance formed a long archway, and into this passage, right over the foul drain, was the only window of the first lodging we entered. It was a single large room; the rent was 90 fl. per annum. A woman and four children lived here. From this room, with the aid of matches, we found our way along an absolutely dark corridor. There were no windows whatsoever to light this passage, and a cavernous, damp odour prevailed. At the end we penetrated a tenement consisting of two rooms, one of the rooms being nearly filled with a grand piano. Seven persons lived here, most of them musicians, and the rent was 150 fl. per annum. Outside there were stables, a large number of goats and poultry were wandering about, and under a distant archway there were four closets, which were frequented by the inhabitants of three courts. These closets were filthy in the extreme, and being under an archway were dark and had no direct ventilation. Near to these closets we came upon five adult persons sleeping together in a very small room; and in a room upstairs I counted six beds. This latter tenement consisted of two rooms—the larger room with the six beds and a smaller room where an old woman was at work making sacks. By this occupation she said she could earn from 2 fl. to 3 fl. per week. The rent for these two rooms was 150 fl. per annum. Close by a very small private chapel had been divided in two horizontally by building a floor across the middle, thus converting it into two tenements. The upper portion, consisting of one long narrow room under the roof, was occupied by five persons. The atmosphere within was absolutely stifling. Close to this chapel tenement I found a mangle in a dark sort of lumber space at the end of a passage in which there were three closets, so that the foul emanations from the badly constructed drains could be readily absorbed by the damp linen about to be mangled; indeed, there were a great many laundresses in this unwholesome quarter. Another room I found to be below the level of the court; it was damp and had an earthy smell. There was but one very small window, and this was not opened "because the baby was ill."

In the same part of the town and not far from the New Houses of Parliament, now in course of construction, I visited a court inhabited exclusively by Slavs. The Slavs have come in droves to Budapest. They are very clannish, generally live together, and do labourer's or navvy's work. On two sides of the court there were small, low houses of the cottage type, and in one of these cottages there were six people inhabiting one small room, for which they paid 180 fl. rent per annum. The third side of the court, or little square, was walled off from the street by a wooden hoarding, while on the fourth side there was one of the most remarkable structures it has ever been my fate to see in a large town. (Fig. 1.) It was a wooden hut constructed apparently by amateur builders who had utilised any odd planks and bits of wood that could be picked up. In photographing this shanty

[1] The Austro-Hungarian florin is nominally worth 1s. 8d., but if changed into English or French currency there would be some loss.

I persuaded one of the Slavs inhabiting the court to stand close against the hut so as to show how low it was. It will be noted that the door is wider at the bottom than at the top and consequently cannot be properly closed. But the thin planks which constitute the walls do not fit better than the door. In many places the hand can pass between them. In spite of the encumbering lumber and the darkness I managed

FIG. 1.



Wooden Hut at Budapest in the Court tenanted by Slavs.

to photograph the interior. In the small bed there depicted sleep a man and a woman. (Fig. 2.) On the bed is the man's stock-in-trade, a basket loaded with crockery. It will be noticed that the bed stands on the bare earth. There is no flooring whatsoever, and when it rains the earth becomes quite wet with its soakage from the surrounding land. But

FIG. 2.

Interior of the same Hut.

a good deal of the rain also enters this habitation through the numerous holes in the roof and walls. The light shining through these holes and the open spaces between the badly fitting planks forms white spots and white lines in the photograph. Some straw for packing the crockery, broken wooden cases, old rags, and tattered clothing filled up much of the space within the hut, though apart from the bed there was no other article of furniture. The day of my visit was grey and grisly, and everything about was damp, cheerless, and devoid of any trace of comfort. The hut suggested a temporary structure reared by a shipwrecked mariner on the shores of a desert island. That it should be the home of a man and a woman in the great and prosperous commercial and political capital of a civilised European country seemed almost incredible. To sleep in such a place is to risk being frozen to death, for, as is the case with all Central European towns, Budapest suffers from the extremes of heat and cold. This is not, of course, shown by the average temperature. From 1871 to 1890 the annual average temperature was 9·9° C., the warmest month (July) was 21·4° C., and the coldest (January) 1·9° C. below zero; but this is the average for many years. The average temperature for July, 1865, was 24·8° C., and for December, 1879, the cold was equal to 10·5° C. below freezing point. The greatest extremes known were of heat 35° C. in July, 1870, and of cold – 26·6° in December, 1879. Let us imagine what must be the condition of people who are only protected from such extremes of temperature by a few thin planks of wood loosely nailed together. The cutting draughts passing through this hut from all sides certainly provide

FIG. 3.

Entrance to Mansion in the best quarter of Budapest, showing Grated Window of Cellar Tenement below.

plenty of air, but they destroy all sense of comfort, al possibility of warmth or efficient shelter.

It may be argued that this hut was but a temporary make-shift, though it has been in existence a good long time, that it was meant only for cattle or for lumber; but this is no reason for allowing human beings to dwell in it. In any case, there are close at hand large blocks of dwellings recently constructed, and for them there is no excuse for insanitary conditions. There must have been some municipal control over the plans and designs of these vast workmen's dwellings. One of these block buildings which I visited contained sixty-three children belonging to forty different families, each family being located in a separate tenement. The square block has in its centre a square yard, after the fashion of a Spanish *patio*, with balconies all round at each floor. The first of these galleries or balconies is on a level with the pavement of the street, and the court a storey below. Thus the house is built down as well as up, and there is a whole floor divided into numerous tenements below

the level of the street. The only light and air are from the *patio* or inner well-like court, or else from very small skylights on a level with the street causeway. No special provision is made for the ventilation of these underground dwellings; they were dark and damp, and at this low level, where there is little or no circulation of air, there were a number of closets, which, though trapped, were so rarely flushed that the traps were full of solid soil and the pans filthy. Thus, in the most recently constructed artisans' dwellings, tenements are deliberately built that can never receive a direct ray of sunlight, that must ever remain in a state of semi-darkness, that cannot be free from damp, because the outer walls rest against the earth below the street pavement, that cannot be efficiently ventilated, and must evidently and for all these reasons be absolutely unwholesome. According to the official report of the Director of the Statistical Office of Budapest, the well-known demographer, Professor Körösi, the living in underground dwellings shortens human life by from two to three years, and he further declared that at Budapest the prevalence of infectious epidemics in underground dwellings is 60 per cent. more frequent than in other dwellings. Yet in spite of this authoritative statement there were in 1890 in Budapest 104,047 dwellings or tenements of which 5·09 per cent. were underground.

Nor is it only in poor quarters and in artisans' dwellings that cellar tenements will be found. These also exist in the wealthiest parts of the town. Within a stone's throw of the best club of Budapest, in a magnificent street proudly called Magyar-street, there are several cellar dwellings. The accompanying photograph shows the only light and air inlet given from the street to one of these cellar tenements. (Fig. 3.) The handsome window of the ground floor, and the stately entrance door indicate that this is a luxurious and high-class dwelling-house. But there is a small aperture protected by iron bars and on a level with the causeway. This is the only window of a tenement below. This cellar dwelling consists of one room lighted by the little aperture in question. The room measures 4·20 by 4 metres and is 2·20 metres high. At the end furthest from the street there is a kitchen measuring 3 by 3 metres and 2 metres high. This kitchen is absolutely dark. Dr. Schwartz calculated that the rent paid for this cellar dwelling amounted to the fabulous sum of 5·66 fl. per square and 2·66 fl. per cubic metre of space, or in round figures £12 a year. In the same building there were several other equally dark and dear underground tenements. Such places, though only suited to serve as cellars for storing wine, are thronged by poor people who live there and overcrowd even these wretched abodes. Under such circumstances it is not surprising that the death-rate at Budapest is high; the cause is self-evident. Of course overcrowding in a city that is rapidly developing cannot be easily checked, but surely as new houses are being built on all sides the authorities can prevent the construction in them of dwelling rooms that cannot by any possibility become wholesome habitations. If the authorities—in view of the indifference and ignorance of the population on such subjects, or of the interested opposition of building speculators—had not the courage to deal with this question they could have profited by the presence of the International Congress of Hygiene and Demography at Budapest to gain the moral strength of which they seem to be deficient. They might have invited the whole Congress to express its opinion on the necessity of abolishing cellar dwellings. This discussion might have been preceded by a visit to some of the cellar dwellings of Budapest. Such an excursion would not have redounded to the honour of the Hungarian people, but it would have done credit to the sincerity and humanity of all concerned. It would not have supplied the material for flattering comments on the progress accomplished at Budapest, but it would have provided sharp and incisive arguments to force forwards the cause of sanitary reform, which, in respect to the housing of the poor, has been scandalously neglected.

(To be continued.)

ANNUAL REPORT OF THE SANITARY DEPARTMENT OF EGYPT.

THE annual report of 1893 by Surgeon-Lieutenant-Colonel Rogers, the Director-General of the Egyptian Sanitary Department, has recently been issued. The existing evils of Egyptian sanitation are, as in two former reports, very plainly pointed out in trenchant language which admits of no possibility of doubt. While urging the necessity of an increase in the inspectors, and pleading for the appointment of an additional European, which has since been granted to him, Surgeon-Lieutenant-Colonel Rogers writes: "In time of epidemic disease such as cholera the present organisation can only lead to a breakdown, and this I wish to be clearly realised. In dealing with the ordinary epidemics of the country, especially typhus fever, cases are constantly occurring where no inspectors are available, and the inadequate measures taken by incompetent medical officers lead to a loss of life which an inspecting staff would largely diminish." Now that typhus fever has become so rare in England it is interesting to note that in Egypt there were forty-three outbreaks as compared with twenty-two reported in 1892. This increase in the reported numbers may be partly due to greater activity on the part of the native officials. Altogether 1407 cases were notified, including 243 deaths. They were spread all over the various provinces, from the Soudanese frontier to Alexandria, but many of the epidemics were caused by relapsing fever, which the native medical men can hardly yet diagnose from typhus fever. Moreover, at least 108 cases and twenty-six deaths must be deducted from the figures above because they were due to enteric fever among the British troops. Measles was present during the year, chiefly from February to July, and caused 473 deaths out of 1215 cases reported. Small-pox accounted for 191 deaths, out of 746 patients, rather more than half of whom were inhabitants of Lower Egypt. The disease, when it appears, plays great havoc among the blacks, who are never vaccinated in the Soudan. It is very satisfactory to find that in Cairo itself, where civilisation ought to be further advanced, there were only eight cases during the year. To those who are interested in the medical welfare of the Egyptians it is satisfactory that not only do the hospitals to which English medical men are attached grow in popularity, but that also some of the provincial hospitals are now sufficiently filled, though the staff consists entirely of native medical men, most of whom have been recently educated at Tantah, where there is the greatest improvement of this kind: the in-patients for 1892 numbered only 979, while in 1893 there were 1196. At the Kasr-el-Aini Hospital, where the annual overturn is nearly 5000, there were 976 surgical operations, besides 1037 ophthalmic operations. The sum of £22,000 is now being spent upon repairing and partially rebuilding this old hospital, and Surgeon-Lieutenant-Colonel Rogers is more than ever convinced that it would have been true economy to have entirely condemned the old building and built a new hospital on modern plans. A small infectious hospital, consisting of two pavilions for twenty-two beds, has been built in the desert near Cairo, and to this is attached a public disinfecting station. At Alexandria also a new pavilion for twelve beds for infectious diseases has been erected. The lunatic asylum has been provided with new kitchens, baths, and laundry, and it is hoped that permission will now be given for an English psychologist to be appointed in order to study lunacy as seen in Egypt, and also to introduce some form of necessary employment and exercise for the patients. The drainage schemes for Cairo and Alexandria are still being studied without any immediate hope of fulfilment. It is estimated that for Cairo alone the cost will be over a million pounds, and Surgeon-Lieutenant-Colonel Rogers meets the financial difficulty by strongly advising the Egyptian Government to spend half that sum upon the partial drainage of certain quarters of the city. In commenting upon some of the faults of native medical men in the Sanitary Department, the Director-General reminds the Government that no lasting improvement in the officials can take place so long as instruction at the medical school is given only in Arabic. "After leaving the school," as Professor Virchow has put it, "the entire literature of civilised nations is a closed book to the students." The only criticism which we feel tempted to make upon Surgeon-Lieutenant-Colonel Rogers' able report is where he is inclined to recommend that the course of medical education be reduced from six years to five years, on the grounds that students in law and engineering have a course of only four years. The whole tendency of medical studies is to become more expansive every year, and we believe we are right in saying that one year of the enforced term is devoted to those scientific subjects which should properly be studied before the professional course begins.

To the sanitarian, water-supply is an urgent question of the first rank, and Egypt is sadly in need of reform here, for it

appears that the only towns in which any attempt is made to distribute filtered water are Cairo, Alexandria, Port Said, Suez, and Assiout. In Cairo the filtration by bacteriological tests is satisfactory, but unfortunately only a small minority of the inhabitants have filtered water laid on to their houses. In Alexandria the absence of proper filtration by the water company has been exposed by the reports of Dr. Bittar, the German sanitary inspector attached to the municipality, and in consequence some new filters are now being constructed there. In the chemical laboratory it is curious to note that rather more than one-fourth of the year's analyses for the various Government departments had reference to the discovery of cannabis indica (hasheesh). Attention is called to the existence of nineteen cases of poisoning, mostly by arsenic, which came before the Medico-Legal Commission. It is difficult to say how many other cases there may be which defy detection. The Egyptian, like the native of India, sometimes becomes a professional poisoner and is fond of using datura for his victims, but fortunately not in lethal doses. We are told that there are 3000 villages in Egypt provided with barbers and midwives, but 1000 others have no similar provision. It would be interesting to know how the practice of the medicine men and old women of these thousand villages is carried on, and also who is responsible for the certificates of death. Surgeon-Lieutenant-Colonel Rogers concludes by pressing upon his chiefs the importance of creating a bacteriological laboratory and of providing some day a necessary refuge for the lepers and the incurables of Egypt. There are several appendices to the report, including an interesting one by Mr. Littlewood, the chief veterinary inspector. From it we learn that there were during 1893 six cases of human rabies reported and only one case in a dog. Two Englishmen and a native underwent treatment in Paris, and so far are quite well. Rabies seems to have been introduced during the last few years into Lower Egypt from Europe; it would seem to be quite time to establish a dog tax, and more stringent control over the ownerless dogs. Eighteen cases of glanders and farcy were reported in Cairo and Alexandria, and an extensive trial of mallein was carried out in doubtful cases. Influenza has been very rife among horses, mules, and donkeys, though in previous epidemics among human beings in Egypt the stables escaped free. At the Cairo slaughter-house 113 cases of tuberculosis were detected, and the camels furnished the very large proportion of 4 per cent. of this number. The slaughter-houses and the animals of Egypt are now better cared for than the incurable paupers who by reason of blindness, lameness, or other infirmity are unable to earn their livelihood. These unfortunates are at the mercy of the Wakfs, or Ecclesiastical Commissioners, and though their condition was fully exposed to the Council of Ministers ten years ago, and again a year ago by Surgeon-Lieutenant-Colonel Rogers, nothing has been done in the way of reform. "The building is in a wretched state of repair and in a most filthy condition, swarming with vermin." Four male and two female attendants are supposed to look after 224 inmates, including 107 lunatics, who are visited by a native medical man twice a week. The condition of this "Te Kia," which is at Tourah, only eight miles from Cairo, is enough to show us what care the Egyptians take of their co-religionists, and we tremble to think what would be the condition of the hospitals of the country if it were not for the handful of English medical men attached to the sanitary service of Egypt.

THE LANCET RELIEF FUND.

SIXTH ANNUAL REPORT OF THE ALMONERS.

THE LANCET Relief Fund, which has for its Almoners the President of the Royal College of Physicians of London (Sir J. RUSSELL REYNOLDS, Bart., M.D., F.R.S.), the President of the Royal College of Surgeons of England (Mr. JOHN WHITAKER HULKE, F.R.S.), the President of the General Medical Council (Sir RICHARD QUAIN, Bart., M.D., F.R.S.), Mr. THOMAS WAKLEY, F.R.C.S., and Mr. THOMAS WAKLEY, jun., L.R.C.P. Lond., with Sir HENRY PITMAN, M.D., F.R.C.P., as Honorary Auditor, came into operation on the 1st of February, 1889.

In presenting the sixth annual report, the Almoners think it well again to direct attention to the objects for which the Fund was established.

The Fund is sustained solely by the Proprietors of THE LANCET, who provide every January the sum of at least £300, and is administered free of cost, with the object of affording immediate pecuniary assistance to registered medical practitioners, or to the widows or orphans of members of the profession in cases of distress and emergency, by the grant of money by way of loans free of interest, or gifts, as the circumstances of the various cases may require.

When the Fund was inaugurated considerable misapprehension existed as to the precise objects for which it had been established; and, as a result, the majority of the earlier applications, being cases of *chronic* distress, and not coming, therefore, under the designation of *emergency*, could not be entertained. Attention was called to this fact in THE LANCET of Feb. 16th, 1889, in the following words:—

"We are requested by the Almoners to state that, from the character of a number of the applications received, both personally and by letter, for relief, it is evident that in many cases the object for which this Fund has been established is not quite clearly understood; and, if relief had been afforded in the cases of those who suffer from chronic distress, the Fund would have been completely exhausted within the first few days of its existence. They would therefore be greatly obliged if those readers of THE LANCET who may be asked to endorse applications would carefully peruse the Application Form and explain the precise object of the Fund to those applicants whose cases do not seem to come within the scope of the purpose for which the Fund has been established; which is, to afford prompt aid to registered medical practitioners, or to the widows or orphans of members of the profession, who, in consequence of the supervention of some unexpected exigency, which is not likely to recur, have pressing need of immediate and temporary pecuniary relief," and who, it may once more be pointed out, are likely to be permanently benefited thereby.

The balance in hand at the end of 1893 amounted to the sum of £133 4*s*. On Jan. 1st, 1894, the Proprietors of THE LANCET placed to the credit of the Fund the sum of £300. During the course of the year repayments of loans to the amount of £21 have been made. The sum of £344 has been granted in relief either by way of loan or of gift, leaving a balance of £110 4*s*., as per bank pass-book.

There have been considered altogether during the twelve months ending Dec. 31st, 1894, 56 applications for relief (the number the previous year having been 48). In 26 cases assistance was afforded, either as a loan or as a gift, according to the request of the applicant, the amounts of the grants ranging this year from £5 to £30.

The following are extracts from a few letters received from some of the recipients of the Fund:—

186.—"I wish to thank the Almoners for the help their loan has been to me, as it was one of the means which has helped me to resume my work."

217.—"I beg to return you my very best thanks for the generous gift of £—— from the above Fund; and I can assure you, gentlemen, that the grant will prove of much service to me in overcoming my difficulties. I enclose a letter of thanks to the Almoners; but, if in order, I would feel it a favour if you could specially convey to the Messrs. Wakley my deep gratitude for the kind gift which emanates from them. I trust in time to be able to report to them a successful issue out of my difficulties."

221.—"The Almoners of THE LANCET Relief Fund.—I beg to offer you my very sincere thanks for the loan granted to me, which will entirely relieve my pressing necessities, and without which I am utterly at a loss to know to what source I could have turned for help."

223.—"I am unable to sufficiently thank you for £—— so kindly sent from THE LANCET Relief Fund. You cannot imagine of what use it will be. I enclose receipt with very many thanks."

232.—"I return you my grateful thanks for the donation of £—— received last evening. Indeed, it came in an acceptable

moment. Another week's rent due to-day, with old arrears at a standstill—this gift has prevented landlord taking extreme measures; and, secondly, I have a little boy very ill; so, indeed, it seemed a godsend, with but one sixpence in the house. Again thanking you ——."

237.—"Be good enough to transmit to the Almoners of THE LANCET Fund the expression of my sincere gratitude, not only for the generous aid granted me, but for the promptitude of their truly kind assistance. It will be a satisfaction to them to know that their benevolent act has materially helped to calm the breakers which threaten to engulf a struggling professional brother."

238.—"I have received your kind note with enclosed cheque for £—— from the Almoners of THE LANCET Relief Fund. I feel very grateful for the kindness so promptly attended to in sending me the required relief, and also for the liberality of time given for the repayment of loan; but, should I be fortunate enough in securing a permanent situation, it will be my wish and pleasure to repay the debt long before the time stated. I enclose the agreement signed, also the receipt for cheque for £——. And again sincerely thanking you for my wife and myself," &c.

246.—"Allow me to thank you very much for your great kindness to me and my little ones. I am truly thankful; I cannot say more. My case is a very hard one, my husband being ill so long that we are sadly reduced, so much so that not one of us had a second change of clothes, so that you may know how truly thankful we all are for your kindness."

248.—"I beg to offer you my most grateful thanks for your generous gift received this morning, as I am absolutely penniless, and only for your goodness in thus so promptly responding to my application should have been in great distress. Again thanking you very much, pray accept my warmest thanks for so promptly submitting my request to the Almoners of THE LANCET Relief Fund, who have so generously responded to the same. I was quite penniless, so you can well imagine my thankfulness."

J. RUSSELL REYNOLDS. RICHARD QUAIN.
J. W. HULKE. THOMAS WAKLEY, JUN.
THOMAS WAKLEY.

Statement of Accounts for the Year ending Dec. 31st, 1894.

DR.

	£	s.	d.	£	s.	d.
To Balance at Bank, Jan. 1st, 1894	133	4	0			
,, Proprietors of THE LANCET	300	0	0			
,, Repayment of Loans :—						
Case No. 136 ... ... £2 10 0						
,, 186 ... ... 5 0 0						
,, ,, ... 5 0 0						
,, 194 ... ... 6 0 0						
,, 212 ... ... 2 10 0						
	21	0	0			
	£454	4	0			
To Balance at Bank	£110	4	0			

CR.

	£	s.	d.	£	s.	d.
By Loans :—						
Case No. 201	20	0	0			
,, 204	10	0	0			
,, 212	5	0	0			
,, 216	24	0	0			
,, 221	30	0	0			
,, 237	20	0	0			
,, 238	10	0	0			
,, 247	25	0	0			
				144	0	0
By Gifts :—						
Case No. 200	10	0	0			
,, 202	5	0	0			
,, 203	10	0	0			
,, 205	10	0	0			
,, 213	10	0	0			
,, 214	5	0	0			
,, 217	10	0	0			
,, 218	15	0	0			
,, 223	10	0	0			
,, 224	10	0	0			
,, 232	5	0	0			
,, 233	15	0	0			
,, 245	25	0	0			
,, 246	10	0	0			
,, 248	10	0	0			
,, 249	10	0	0			
,, 250	10	0	0			
,, 251	20	0	0			
				200	0	0
,, Balance at Bank				110	4	0
				£454	4	0

I find by the Bankers' Book that the actual balance on Jan. 1st, 1894, to the credit of the Fund was £133 4*s.*, to which the sum of £300 was added by the Proprietors of THE LANCET on the same day.

The balance at the Bankers' at the present date is the sum of £110 4*s.* I have also checked the receipts for disbursements and find the above account strictly accurate.

December 28th, 1894. HENRY A. PITMAN, Hon. Auditor.

CHRISTMAS AT THE HOSPITALS.

As far as circumstances permitted high festival has been held in the wards of many of our London hospitals during the Christmas season, and praise is due both to the medical and lay staffs of the institutions concerned for their endeavours to lighten the burdens of the sufferers whom misfortune has placed on a bed of sickness.

King's College Hospital.—On the locker at each bedside was placed a Christmas gift of warm clothing for each patient on awakening on Christmas morning. The wards were beautifully decorated with drapery, evergreens, and flowers, and illuminated with innumerable candles and fairy lamps, and looked brilliant in their many lights and colours. Christmas dinner, consisting of turkey, plum pudding, &c., with wine, was served in all the wards at 12.30, and from 2 till 4 o'clock in the afternoon the hospital was open to visitors so that the patients could have their friends with them. The Christmas tea was served soon after 4 o'clock, the wards being illuminated. After tea the resident medical officers and the nursing staff, assisted by some friends, gave short concerts in the wards, excepting those wards where any of the patients were thought to be too ill to bear the music. These entertainments were most enthusiastically joined in by the patients, and were very successful. The whole day passed delightfully, resident medical officers, students, sisters, and nurses all successfully endeavouring to make others happy and themselves thoroughly happy in doing so.

Middlesex Hospital.—On Christmas Day the patients of the Middlesex Hospital were regaled with the usual Christmas fare, and in the evening with tea, cake, and light refreshments. A monster Christmas tree was erected in the board

room, from which all patients who were well enough to come down received a gift, while for those confined to the wards a bran-pie was taken round, and every patient, nurse, and servant of the institution received a present. It has been decided to defer for a few weeks the concert given by the Middlesex Hospital Musical Society, under the leadership of Dr. J. J. Pringle, who is organising a brilliant entertainment of song, recitation, and instrumental music for the amusement of the unfortunate sufferers in the hospital.

St. George's Hospital.—The usual Christmas festivities were indulged in, and those who were well enough to eat them were supplied with roast beef and plum pudding on Christmas Day. On the evening of the 27th an entertainment for the patients was given, and a liberal tea presided over and served to the patients by the lady visitors and their friends provided. A musical entertainment was also held in all the wards where the patients were not too ill to suffer in consequence. Christmas trees were provided for the amusement of the children, and the beautiful presents of toys received from *Truth* were distributed. Everything was done as far as possible to give the patients a happy Christmas season.

St. Thomas's Hospital.—The only festivities which took place this year were carol singing on Boxing evening and the pleasures associated with a Christmas tree, which was decorated in the Victoria Ward on the following day.

London Hospital.—The annual Christmas tree and entertainment were held on New Year's Eve.

Royal Free Hospital.—A very enjoyable day was spent at this hospital on Dec. 25th. The seven wards were decorated by the nurses. As a third of the beds were closed in consequence of alterations there were only 120 patients in the hospital. A dinner consisting of the usual Christmas dishes was served at 12.30, after which a briar pipe and an ounce of tobacco, the gift of Mr. J. M. Grant, a member of the board, were given to each of the men, and fruit was provided for the women and children. A special invitation was sent by the matron to each child who had been an inmate of the hospital during the year and to the friends of the patients, and a large number put in an appearance between two and three o'clock, when as guests they received every consideration. After tea, at which all the visitors were present, several entertainments were given by the nurses in the different wards. Each patient and each of the young guests received a suitable present, those for the children being hung on the Christmas tree.

Great Northern Central Hospital.—Christmas Day and Boxing Day at this hospital were celebrated in the customary manner by the decoration of each ward by the nurses and convalescing patients with holly, ivy, and mistletoe, supplied in abundance by numerous friends of the hospital living in the neighbourhood. The patients, with few exceptions, thoroughly enjoyed a Christmas dinner of turkey and plum pudding, and an extensive distribution of toys made all the children happy. On Boxing Day an impromptu concert was organised in the Henry Quin Ward by the staff, and was much enjoyed by the patients. The annual entertainment for the patients will not, however, take place until Jan. 15th, when a series of *tableaux vivants* and a concert will be given under the direction of Mrs. Herbert Allingham.

The German Hospital.—The wards of this hospital were tastefully decorated, and on Christmas Eve the trees were illuminated, presenting a very pretty spectacle. Carols were sung, and a distribution of suitable presents was made to the patients, nursing staff, and attendants.

Hospital for Consumption, Brompton.—At this institution Christmas was, as usual, kept in exceedingly pleasant fashion. The galleries and wards were beautifully decorated with evergreens by the willing hands of sisters and nurses. The dinner consisted of turkeys and plum puddings and wine. Early on Christmas morning the nurses sang carols on the galleries, and later there were services in the chapel. On Friday evening the usual Christmas tree distribution took place in the entertainment room, every inmate receiving a handsome gift, through the kindness of the Misses Heddy and many other friends of the institution.

National Hospital for the Paralysed and Epileptic.—At this hospital every effort was made to make Christmastide bright and cheerful. Books and cards were distributed at breakfast time, and after dinner and dessert a round of festivities was begun in the wards, including the performances of a negro troupe organised by the house physicians. Friends were admitted on Boxing Day, and on the Thursday there was a grand entertainment in the large hall, with a distribution of useful gifts arranged by the Lady Superintendent, in which every patient shared. A Christmas tree will be provided and ward teas and ward concerts take place during the succeeding fortnight, and the festivities will conclude with a display of magic and ventriloquism on Jan. 15th.

Samaritan Free Hospital for Women and Children.—The Christmas festivities at this institution were held on Dec. 27th, and began with a musical and dramatic entertainment provided by the following *artistes*: Mr. John Thomas (the Queen's harper), Mrs. John Thomas, Miss Orgill, Miss Napier, Miss and Master Peile, Mr. and Mrs. Hugh Bulkeley, Madame L'Estrange, Miss Elsie Macmillan, Mr. W. H. Propert, Dr. Walter Tate, and Mr. Hutchens. They gave a very successful and highly artistic performance, and their efforts were much appreciated by the patients and nurses who were fortunate enough to be able to attend. A carol was sung by the nurses. After the entertainment the annual distribution of Christmas gifts took place, and, thanks to the liberality of a number of kind-hearted friends, a goodly stock of useful and ornamental articles were obtained for the occasion and distributed amongst the patients, nurses, and servants of the hospital.

City of London Hospital for Diseases of the Chest.—On Christmas Day a dinner, consisting of the usual Christmas fare, was provided for the patients at this hospital, at which some of the committee of management and governors were present. Christmas cards, books, periodicals, &c., were distributed, dolls, toys, &c., provided by *Truth* and other friends, being given to the juvenile patients. In the evening a musical entertainment took place which was much appreciated.

East London Hospital for Children.—The Christmas entertainment for the patients of this hospital was held on Dec. 29th.

Victoria Hospital for Children.—Her Royal Highness Princess Louise has signified her intention to be present to-day (Friday) at the Christmas treat to be given at this institution.

Dreadnought Seamen's Hospital.—On Christmas Day service was held in the hospital chapel at 10.30 A.M., and the Christmas dinner, consisting of turkey and plum pudding, was served to the patients at 12.30 P.M. On Dec. 28th there was a concert and dance for the nurses, commencing at 7.30, on which occasion Mr. P. A. Nairne, the deputy chairman, brought his private band. On Jan. 3rd there was a Christmas tree for the children who had been patients during the year or were present in the wards, and on a date early in January Mrs. Freck. Smith of Lewisham Hill will give an entertainment to the patients in the recreation room.

The Cancer Hospital, Brompton.—On Christmas Day the whole of the patients who were well enough to partake of Christmas fare were regaled with turkey, plum pudding, and other such luxuries. On Jan. 2nd high tea was held with the usual Christmas tree amusements. This hospital provides regular entertainments (either dramatic or musical) throughout the winter season about once a fortnight.

Among the provincial institutions the staffs of which ministered to the happiness of the sick inmates were the Bristol Royal Infirmary, the Children's Hospital and the Eye Hospital in the same town, the Nottingham General Hospital and the Children's Hospital, the Fleming Memorial Hospital, Newcastle, and the York County Hospital. Christmas Day at the Royal Berks Hospital was spent in a very happy manner, game, turkeys, and other Christmas fare being supplied in abundance.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Staffordshire County Sanitary District.—Dr. George Reid, in his annual report for 1893, follows his usual practice of dealing with the district reports under subject-headings, instead of, as is done by some county medical officers, giving a synopsis of each report separately. Dr. Reid, however, supplies at the end of his report excellent tables which practically summarise the work done in each sanitary district in the county, and it is easy to obtain at a glance any information that may be required as to any given place. A special

report upon the isolation provision of the county is embodied in the report before us, and Dr. Reid observes, that in any scheme for providing hospital accommodation for the county, it must be laid down as a principle that small-pox cases may not be isolated in the same hospital as other infectious diseases. Dr. Reid also refers to the necessity for making proper provision for trained nurses, and he rightly states that it is not surprising that the public hesitate to submit to isolation under the circumstances existing in many districts. A very full and interesting account is given by Dr. Reid in his report of some experiments which he undertook for the county council with a view to determine the possibility or otherwise of effectually treating the sewage of slop-closets when the rain water is carried off by a separate system. Experiments were made both with polarite and magnetone as a filtration medium, and with ferricum and superphosphate of lime as a precipitant. Without discussing in detail the experiments, it may be said that Dr. Reid arrived at the conclusion that for undiluted slop-closet sewage precipitation by either of the precipitants referred to, and filtration through either magnetone or polarite, was insufficient to purify the sewage, and that where a slop-closet system is in vogue land filtration will have to be resorted to. In the part of his report dealing with infantile mortality Dr. Reid gives the following tables showing the effect of factory labour upon the death rates:—

Deaths in Children under One Year in Three Classes of Artisan Towns in Staffordshire.

—	Class I. Many women engaged in work.	Class II. Fewer women engaged in work.	Class III. Practically no women engaged in work.
Ten years, 1881-90 ...	195	166	152
Five years, 1889-93 ...	199	176	167

It will be seen that the figures in regard to the five years 1889-93 are on a par with those from 1881-90. It seems that only in a few of the district reports is the question of the sanitary supervision of dairies, cowsheds, and milkshops noticed, and we trust that Dr. Reid's remarks under this head will produce a good effect.

Gloucester County Sanitary District.—The Medical Officers of Health (Reports) Committee of this county council state that they have examined the reports relating to the several sanitary districts for the year 1893, and as a result they have issued nine small pages of printed matter thereon. We regret that we are unable to say much in favour of the report, as it treats only in the most superficial fashion of sanitation in the county. We learn, however, from it that there are still seven sanitary authorities "so retrograde" as to refuse to those under their care the advantages of notification. The several zymotic diseases other than small-pox are dismissed with but a few lines each, while one page is devoted to small-pox. All the authorities in the county are, we are told, alive to the importance of a pure water-supply, and we are glad to learn that the activity of the sanitary authorities increases year by year. Such important subjects as river pollution, the houses of the working classes, the control of the milk traffic, &c., are passed over in silence; and no serious attempt is made to analyse the vital statistics relative to the county.

Lanark County Sanitary District.—Dr. James McLintock's election as a member of the newly-formed Local Government Board of Scotland renders his third report to the Lanarkshire County Council, the last that he will make in his capacity as county medical officer of health, and he will in the future be in a position to forward in no small degree the necessary reforms of his old district. Dealing with the housing of the working classes in the landward areas of Lanarkshire, Dr. McLintock is able to state that considerable progress has been made, particularly in miners' houses, since his last report, and we read of an experiment being made to light the miners' cottages with electricity. It seems, indeed, that a healthy competition has been started amongst colliery proprietors in the matter of house provision for their employés. Considerable activity is being manifested in the county in the matter of hospital provision, and in the Middle Ward the temporary provision of a portable hospital has, Dr. McLintock states, more than justified the expenditure incurred upon it. As to the prevention of river pollution, Dr. McLintock expresses the opinion that the praiseworthy resolve of Glasgow to do its part towards the purification of the Clyde must lead in a short time to similar action on the part of other sanitary authorities. He considers that in many cases no very great outlay will be necessary, inasmuch as in his opinion the sewage can be disposed of over suitable land at a small cost. It seems, however, that in many instances extensive trade effluents will have to be dealt with. New water supplies are being rapidly provided in the county, more especially in the middle ward, and, as Dr. McLintock remarks, it may be expected that several severe outbreaks of enteric fever due to polluted drinking-water which occurred in 1893 will not recur. Dr. McLintock states, in advocating a new Public Health Act for Scotland, that the most pressing requirements are powers to frame and enforce building regulations, and to form special cleansing districts. There is contained in the report before us a paper by Dr. Macmartin Cameron on Twenty Years' Vital Statistics in Lanarkshire. This paper is lucidly written, and very considerable labour must have been expended in its compilation.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 4921 births and 3615 deaths were registered during the week ending Dec. 29th. The annual rate of mortality in these towns, which had declined in the preceding three weeks from 20·2 to 18·2 per 1000, further fell last week to 18·0. In London the rate was 17·2 per 1000, while it averaged 18·6 in the thirty-two provincial towns. The lowest rates in these towns were 6·5 in Croydon, 13·2 in Leicester, 13·6 in West Ham, 13·8 in Norwich, and 15·1 in Cardiff; the highest rates were 22·7 in Burnley, 23·0 in Sunderland, 23·3 in Brighton, 24·0 in Gateshead, and 26·2 in Preston. The 3615 deaths included 385 which were referred to the principal zymotic diseases, against 426 and 392 in the preceding three weeks; of these, 153 resulted from measles, 64 from diphtheria, 56 from "fever" (principally enteric), 51 from whooping-cough, 34 from scarlet fever, 23 from diarrhœa, and 4 from small-pox. No fatal case of any of these diseases occurred last week in Croydon; in the other towns they caused the lowest death-rates in Bristol, Halifax, Leicester, and Preston, and the highest rates in Portsmouth, Newcastle-upon-Tyne, Burnley, Leeds, and Gateshead. The greatest mortality from measles occurred in Burnley, Newcastle-upon-Tyne, Portsmouth, Leeds, and Gateshead; from whooping-cough in Norwich, Huddersfield, and Swansea; and from "fever" in Derby and Sunderland. The mortality from scarlet fever showed no marked excess in any of the large towns. The 64 deaths from diphtheria included 35 in London, 6 in Manchester, and 3 in Leicester. One fatal case of small-pox was registered in London, 1 in Birmingham, 1 in Liverpool, and 1 in Hull, but not one in any other of the thirty-three large towns. There were 16 cases of small-pox under treatment in the Metropolitan Hospitals on Saturday last, the 29th ult., against 33, 22, and 15 at the end of the preceding three weeks; 1 new case was admitted during the week, against 7, 3, and 0 in the preceding three weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital, which had been 2142, 2034, and 1931 at the end of the preceding three weeks, was 1890 on Saturday last; 116 new cases were admitted during the week, against 187 and 161 in the preceding two weeks. The deaths referred to diseases of the respiratory organs in London, which had been 358 and 325 in the preceding two weeks, were 332 last week, and were as many as 305 below the corrected average. The causes of 75, or 2·1 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Bristol, Nottingham, Oldham, and in eleven other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, Leicester, Salford, and Blackburn.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 22·5 and 21·7 per 1000 in the preceding two weeks, rose again to 22·1 during the week ending Dec. 29th, and exceeded by 2·1 per 1000 the mean rate during the same period in the thirty-three large English towns. The rates in

the eight Scotch towns ranged from 13·7 in Leith and 17·2 in Edinburgh to 24·5 in Glasgow and 26·9 in Aberdeen. The 629 deaths in these towns included 41 which were referred to measles, 18 to whooping-cough, 12 to diarrhœa, 3 to scarlet fever, 4 to diphtheria, 2 to "fever," and 1 to small-pox. In all, 86 deaths resulted from these principal zymotic diseases, against 90 and 111 in the preceding two weeks. These 86 deaths were equal to an annual rate of 3·0 per 1000, which was 1·1 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had been 26, 32, and 54 in the preceding three weeks, declined again to 41 last week, of which 24 occurred in Glasgow, 9 in Aberdeen, and 4 in Edinburgh. The 18 deaths referred to whooping-cough showed a slight further increase upon the numbers recorded in recent weeks, and included 14 in Glasgow. The fatal cases of scarlet fever, which had declined from 12 to 9 in the preceding three weeks, further fell to 8 last week, of which 7 occurred in Glasgow. The deaths from diphtheria, which had been 7, 8, and 10 in the preceding three weeks, declined to 4 last week, and included 3 in Glasgow, where the 2 fatal cases of "fever" were also recorded. The death from small-pox was registered in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 157 and 142 in the preceding two weeks, further declined to 138 last week, and were 15 below the number in the corresponding week of last year. The causes of 52, or more than 8 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 27·1 and 26·5 per 1000 in the preceding two weeks, further declined to 25·4 during the week ending Dec. 29th. During the thirteen weeks of the quarter ending on Saturday last the death-rate in the city averaged 23·5 per 1000, against 16·6 in London and 19·6 in Edinburgh. The 170 deaths registered in Dublin during the week under notice showed a decline of 8 from the number in the preceding week, and included 21 which were referred to the principal zymotic diseases, against 18 and 22 in the preceding two weeks; of these, 10 resulted from small-pox, 3 from whooping-cough, 3 from "fever," 3 from diarrhœa, 2 from scarlet fever, and not one either from measles or diphtheria. These 21 deaths were equal to an annual rate of 3·1 per 1000, the zymotic death-rate during the same period being 1·8 in London and 1·7 in Edinburgh. The fatal cases of small-pox, which had been 5 and 6 in the preceding two weeks, further rose to 10 last week; during the thirteen weeks of the quarter ending on Saturday last no fewer than 51 deaths have been referred to this disease in Dublin. The fatal cases of whooping-cough, which had increased from 1 to 5 in the preceding three weeks, declined to 3 last week. The deaths referred to different forms of "fever," which had been 2, 4, and 7 in the preceding three weeks, declined again to 3 last week. The 170 deaths in Dublin included 22 of infants under one year of age and 55 of persons aged upwards of sixty years; the deaths of infants showed a marked decline, while those of elderly persons showed an increase upon the numbers recorded in recent weeks. Seven inquest cases and 6 deaths from violence were registered; and 70, or more than a third, of the deaths occurred in public institutions. The causes of 15, or nearly 9 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

MOVEMENTS OF THE MEDICAL STAFF.

THE following officers have arrived from India on completion of a tour of service:—Surgeon-Lieutenant-Colonel Barrow, Surgeon-Major Jencken, and Surgeon-Captain Green. Surgeon-Major James has been appointed to Shorncliffe; Surgeon-Major Hefferman to Woolwich; Surgeon-Captain Rawnsley to Hounslow; and Surgeon-Captain Macdonald to Belfast. Surgeon-Captain Hayes has embarked for Malta in succession to Surgeon-Captain Forrest, transferred to half-pay. Surgeon-Lieutenant-Colonel Carter and Surgeon-Major Thiele have arrived in Malta; Surgeon-Captain Nunnerley at the Straits Settlements; and Surgeon-Captain Marks at Barbadoes. The retired pay appointment at Newcastle-on-Tyne has been conferred upon Surgeon-Lieutenant-Colonel Hoysted.

ARMY MEDICAL STAFF.

Brigade-Surgeon-Lieutenant-Colonel William Henry Bant Clapp, M.D., is placed on retired pay.

INDIA AND THE INDIAN MEDICAL SERVICES.

The following appointments are announced:—Surgeon-Lieutenant-Colonel F. C. Barker, M.D., F.R.C.S. Irel., to resume Charge of his substantive appointment of Medical Officer to the Kathiawar Political Agency and in Charge of the West Hospital, Rajkot; Surgeon-Captain H. Herbert, F.R.C.S., to resume Charge of his substantive appointment as Civil Surgeon, Kaira. Surgeon-Captain J. L. T. Jones, M.B., on relief, to act as Civil Surgeon, Broach. The services of Surgeon-Lieutenant-Colonel A. S. Reid, M.B., I.M.S. (Bengal), Medical Officer, 2nd Battalion 4th Gurkha Regiment, Officiating Agency Surgeon in Baghelkhand, and Tutor to H.H. the Maharaja of Rewa, are replaced at the disposal of the Military Department. Surgeon-Lieutenant-Colonel Albert Baird Seaman is promoted to Brigade-Surgeon-Lieutenant-Colonel. Surgeon-Lieutenant-Colonel Joseph Wilson, M.D., I.M.S., retires from the service.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant-Colonel Cornelius S. Hall, having resigned his Volunteer appointment, ceases to be an officer of the Army Medical Reserve of Officers. Surgeon-Major James Creagh, to be Surgeon-Lieutenant-Colonel. The undermentioned Surgeon-Captains to be Surgeon-Majors: Samuel B. Mason; George Middlemiss, M.D.; Francis L. Stephenson, M.B.; William S. Symes. Surgeon-Lieutenant Walter K. Loveless to be Surgeon-Captain. Surgeon-Lieutenant Charles Carter Moxon, 2nd Volunteer Battalion, the York and Lancaster Regiment, to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Royal Engineers: 2nd Lancashire (the St. Helens): Surgeon-Major E. F. Hall, M.D., to be Surgeon-Lieutenant-Colonel. *Rifle:* 3rd Volunteer Battalion, the Devonshire Regiment: William Langran, Gent., to be Surgeon-Lieutenant.

PRACTICAL THERAPEUTICS.

The experiment of distributing packets of quinine through the post-office for the use of the native population of India has proved so popular and successful in Bengal that the Bombay Government is arranging for the distribution of the drug in the Bombay Presidency. Packets of quinine will soon be procurable at all the district post-offices in the Presidency and in Sind. It is understood that the Surgeon-General and Postmaster-General of Bombay are engaged in settling the details for giving effect to the proposal. The natives of India appear to have a lively faith in the virtues of quinine for the cure of fever, and as a prophylactic remedy against malarial disease.

HORSES FOR MEDICAL OFFICERS.

Adverting to a paragraph under the heading of "The Services" in THE LANCET of Dec. 15th, 1894, regarding a provision in the last edition of the Queen's Regulations for medical officers being mounted when with an infantry unit, an esteemed army correspondent refers us to the Army Orders for November, 1894 (which are a reissue of this portion of the Queen's Regulations), in which this important addition is omitted. The privilege is, as heretofore, restricted to medical officers when serving with a mounted unit, and matters consequently stand where they were.

SIR WILLIAM LOCKHART'S FORCE.

Among the appointments which have been made to the staff of the expeditionary force under General Sir William Lockhart we notice the names of Brigade-Surgeon-Lieutenant-Colonel Spencer as P.M.O. with the headquarters staff; Brigade-Surgeon-Lieutenant-Colonel Davies as Senior Medical Officer of the Wano Brigade; and Surgeon-Major Shearer as Senior Medical Officer of the Jhandola Brigade.

RETIREMENTS AND VACANCIES IN 1895.

Among the retirements and vacancies in the medical staff in the course of the present year there will, we believe, be four in the rank of surgeon-major-general, one in that of surgeon-colonel, and three in the rank of brigade-surgeon-lieutenant-colonel.

The Government of India has sanctioned the introduction of Surgeon-Major Ranking's "Guide to Hindustani" as a text-book for general use in regimental schools.

Correspondence.

"Audi alteram partem."

"CHILD MORTALITY IN ENGLAND."

To the Editors of THE LANCET.

SIRS,—You have honoured me with a second leading article in THE LANCET of Dec. 22nd, and there is much in it with which I agree; yet I cannot but regard your dealing with my argument as incomplete and likely to mislead, which, I am sure, is far from your intention. You refer to the labours of that giant statistician, the late Dr. Wm. Farr, as if he were adverse to my view. I was the first to read a certain presentation copy of Mr. Noel Humphreys' excellent compendium of his works, and my impression is that Dr. Wm. Farr would have encouraged the use of coefficients like mine as the best means of setting forth the relative mortality of the several age groups. I did not arrive at these coefficients in the way you suppose. Had I done so the errors would have been prodigious though concealed. From 1881 to 1891 the estimated population of the age group 0 to 5 went more and more widely wrong in the annual reports and summaries of the Registrar-General owing to circumstances over which he had no control, so that in 1890 there was an error in excess of about 73 000 as regards the population of the said group in London alone. No wonder the death-rate of the group seemed to decline rapidly. Coefficients of incidence are for the purpose of comparing the death-rates of the several age groups with the average for the time being. The exact relation of each group death-rate to the average being given year by year any variation can be noted. Having the average and the coefficient we easily obtain the group death-rate as their product. But I contend that it is advantageous to be able on occasion to study the relative proportion of the group death-rate to the average without having that group death-rate or even the average itself as a disturbing element always before our eyes. We may place ourselves in a fools' paradise if we look at a declining group death-rate only. What I have found is that from 1876 onwards there has been in regard to the age group 0 to 5 a continual increase in the coefficient of incidence of mortality, showing that this group has had an ever-increasing share of the deaths that occur. You yourself admit that "the rate of decrease of child mortality has not been equal to the rate of decrease of mortality at the later age periods." This way of putting it disturbs the conscience of the nation less; but there must be a cause for the difference you concede, and I ask, What can that cause be? You suggest that if some means of eradicating cancer and phthisis were discovered I could not be grieved, and yet as these are destructive to the later age groups the improvement would make the incidence of mortality upon the younger group all the greater in comparison. So far from denying this, I accept it as strengthening my position. If A and B are running level in a race it makes no difference to the result whether A run slower or B run faster—B wins. But in the case before us the younger age group lags far behind, and that is why special attention should be paid to this group first. It is the turn of the children this time. Let us try and discover some means of removing Death's icy hand from them.

I was not, as you suppose, ignorant of the fact that, if the present excessive rate of mortality among children under the age of five years could be reduced to a third of its present figure, the coefficient for this age period would decline much less. It would become about five-elevenths of what it now is, supposing all else to remain the same. In order to reduce the coefficient to unity the death-rate of children under five years of age would have to decline to three-fourteenths of its present proportions, for the death-rate of this unfortunate group is at present nearly five times as great as the average death-rate of the other groups. Truly you are well within the mark in speaking of the "terribly excessive waste of child life in this country." But in combating my contention that the comparative power of resistance to disease and death grows less year by year in the group under consideration you confine yourself to the coefficients of incidence of mortality "from all causes." Therefore I beg to remind you that I not only brought forward as additional evidence the fact that the group was diminishing in numbers at the wrong end (those least fit multiplying pretty much as heretofore), and that the actual death-rate of infants under one year of age was increasing, but showed that five of the seven principal zymotic diseases were increasingly fatal to the group 0 to 5 as a whole when compared with the later groups. Thus, in London during the eighteen years 1876-93 the coefficients of incidence of mortality upon this group ran up as follows: scarlet fever from 5·044 to 5·660, diphtheria from 4·618 to 5·723, measles from 7·186 to 7·952, whooping-cough from 7·401 to 8·148, and diarrhœa from 6·849 to 7·505, and the ascent was in each case by fairly regular gradation. Now you cannot account for this fivefold increase by any supposed relief to the other groups as regards cancer, phthisis, &c.; and yet there must be some cause, or combination of causes, to account for it. The increase has occurred in the coefficient irrespectively of the direction in which the average death-rate from the disease has moved; in some this has declined, in others (notably diphtheria) it has risen. You must admit, taking each of these five diseases by itself, that the age group 0 to 5 is not only less able to resist the onslaught than are the other groups (that is patent from the magnitude of the coefficients given above), but that it has become in comparison less and less able since each coefficient has increased. Year by year it has had a greater share of the deaths that occur from each of these five zymotic diseases. Can you account for this on any other hypothesis than that which presented itself to me? Perhaps you will copy your astute contemporary and declare that the result would have been different if the years had been transposed.[1] Such statements win my admiration.

I am, Sirs, your obedient servant,

Kingston-on-Thames, Dec. 27th, 1894. D. BIDDLE.

CANCELLING OF DEGREES.

To the Editors of THE LANCET.

SIRS,—Referring to the report in THE LANCET of Dec. 1st, 1894, of the proceedings of the General Medical Council, it seems a pity that so much of the time of the Council should have been taken up in discussing the question of the degradation of university graduates, when a little inquiry would have elicited the fact that universities were not so neglectful of their duty in the matter as has been supposed. As regards the University of Aberdeen the subject has recently been brought before the Scottish Universities Commissioners in a memorial addressed to them by the Senators, the initiative having been taken by that body, and not by the University Court, as might perhaps be inferred from your report. If the Commissioners regard the subject as within the scope of their commission, it is to be hoped that they will issue an ordinance prescribing the circumstances and mode in which an offending graduate may be deprived of his degree. If not, it will be necessary to have the sanction of Parliament by legislative enactment. In addition to the difficulties which were spoken of at the discussion in the Council there has also been suggested this one—that as the medical degree confers a Parliamentary franchise, the cancelling of it would result in disfranchisement. But this should be no real difficulty. If some of our politicians have their way all universities will shortly be deprived of their Parliamentary privileges; and, even were it otherwise, the penalty of disfranchisement is not too heavy to pay for such "infamous conduct" as would lead to the removal of a graduate's name from the roll of his university. I am, Sirs, yours faithfully,

Aberdeen, Dec. 17th, 1894. DAVID W. FINLAY.

"ASSOCIATION OF QUALIFIED ASSISTANTS, JUNIOR MEDICAL OFFICERS, AND LOCUM TENENS."

To the Editors of THE LANCET.

SIRS,—I shall be pleased to receive the names of gentlemen who are favourable to the formation of such a society, stating their views on the subject, also giving their qualifications and addresses, so that I may be enabled to ascertain whether such an association as the above would meet with the approval and coöperation of a sufficient number to warrant my calling a meeting in London to consider and thoroughly discuss this new departure in all its important

[1] Brit. Med. Jour., Dec. 15th, p. 1383.

bearings. Personally I think such an association, rightly managed, might do an immense amount of good and useful work, and would be the most powerful instrument in detecting, and ultimately eradicating, the shameful practice of employing *unqualified* men as medical assistants, a practice unjust to qualified men, degrading to the best interests of our noble profession (should be), and an imposition on the public at large.—I am, Sirs, your obedient servant,

T. HOWARD BROCKLEHURST, M.R.C.S. Eng., &c.

Ilchester-villa, Westham, Weymouth, Dec. 26th, 1894.

*** We comment on this proposal in another column, but may note here that the heading of this letter recalls a well-known *vexata quæstio*. An authoritative statement from a philologist as to the proper and appropriate plural of "locum tenens" (used in its technical sense) would be welcome to those who appreciate the "purity" of language.—ED. L.

THE CONTAGION OF CRIME.

To the Editors of THE LANCET.

SIRS,—It is not a little remarkable that two lads with excellent moral antecedents should be all but simultaneously arraigned before the criminal courts for the perpetration of heinous crimes. In few quarters should such an occurrence be less expected. Scrutinising the painful incidents more closely they seem to me to involve considerations of not less moment for the medical jurist than for a psychologist and legislator. That crime is spread by imitation and human nature brutalised by familiarity with it, are propositions accepted by the most competent criminologists. This is amply demonstrated, among many others, by Dr. Paul Aubrey in his distressing work "La Contagion du Meurtre," a second volume of which appears this year. The question may then be pertinently asked, even while one of the cases is still *sub judice*, To what extent have these unhappy young men, and doubtless many others, not been the victims of a licentious and pernicious press? In the compass of a brief letter it is impossible and perhaps inexpedient to do more than glance at the striking examples of criminal contagion given by Aubrey under the heads of "Contagion by the Family," "Contagion by Community of Life," "Contagion by the Spectacle of Public Executions," "Contagion by the Press," "Contagion by some Special Modes of Murder," &c. On a case with which the people of this country are too familiar, that of "Jack the Ripper," Aubrey deals at some length as illustrative of criminal contagion, and the potency of press publicity as one of its etiological factors. Many similar examples of every manner of crime might be cited, but this one illustrates them all in their various gruesome aspects. It is not without justice that the author sneers at the affected moral superiority of the "English" and the "ignominious" condition of the streets of London when holding the record for criminal mutilation. The Whitechapel brutalities and their consequences are as follow. On July 17th, 1887, Alice Mackenzie, forty years of age, was found with her throat cut and her abdomen incised up to the umbilicus. On April 3rd, 1888, Emma Smith was violated and killed by a band of men comprising "Jack the Ripper." Martha Tabran on Aug. 7th received thirty-nine stabs. Ann Nichols, about Sept. 4th, had her head separated from the trunk and the abdominal cavity opened throughout its entire length. On Sept. 8th Annie Chapman had her head half severed from her body, her abdomen opened, her intestines drawn out of the body, and her heart and liver placed under her head for a pillow. Jane Mary Kelly, aged twenty-two years, had her head separated from the trunk, her nose and ears cut off, and her breasts removed. On Sept. 30th Eidowes was assassinated and the body mutilated. On the same date Elizabeth Stride had her throat cut, but there were no mutilations. On Nov. 11th the liver and intestines of a female were torn out and placed on a table and the limbs carved by knife cuts. On Dec. 26th a female was strangled with a cord. On Sept. 10th, 1889, a female body was found with the head and arms wanting; it presented the usual mutilations and was enveloped in a sack. In February, 1892, Frances Coleman, twenty-five years of age, had her throat cut; and just the other day a mere boy in America "rippered" two children of about the same age. After the London atrocities similar crimes were perpetrated all over the world. At Bradford an infant was found eviscerated in 1888 and the extremities and ears strewn round the trunk. In 1889 two murders with mutilation took place in Hamburg. In 1890 in Moscow the mutilated body of a Sister of Charity was found in a sack. At Berne in December of the same year "Jack the Ripper" again appeared. In 1891 at Liverpool an infant was cut up in morsels and thrown into one of the docks. At Brussels in July, 1891, an infant aged thirteen months was found eviscerated. In October of the same year at Berlin the eviscerated body of a female was found. Three days afterwards Vaubourg slew and mutilated Boutry in the Rue de Charonne; in November, at Madrid, a female body was found eviscerated and mutilated. In the month of July, 1892 Madame Leblan was cut into particles and thrown into the Meuse at Tilly-sur-Meuse. In October, in the Rue Bokaris, a body was found cut in particles. Southampton, Glasgow, the United States, and Honduras contributed to this ghastly roll.[1] Can any sane person believe that a fractional portion of these atrocities were the work of one individual? Is it not morally certain that we have here the influence of criminal contagion, and that its inception is chargeable to the apotheosis by the public press of crime and criminals? This has been fully recognised by the Congrès International contre la Littérature Immorale et le Danger de la Publicité des Faits Criminels, held at Lausanne in September of last year; and it is high time an elevated patriotism recognised it here. Thousands—aye, millions—of young people are corrupted by the daily press—are made acquainted with crimes of which but for it they would ever remain in blissful ignorance. It is almost impossible to take a daily paper into the domestic circle without the risk of moral contamination. No sooner is a foul murder, a "judicial murder" (the blot *par excellence* of Britain among civilised nations), a detestable incest, or a distressing suicide perpetrated at Land's End then it is flashed to John o' Groats. Columns of newspapers are filled with revolting details, broken up under myriad headings cunningly devised to excite and impress the most morbid pruriency. What conceivable good except a few more filthy coppers to the exchequer of the newspapers is thus accomplished it is hard to conceive; what an amount of crime is thus propagated it is not difficult to comprehend. It is surely the function of a patriotic and philanthropic press to relegate to the background and to obscure the distressing features of human nature and to hold up for imitation its nobler and diviner aspects. I venture, then, to express the conviction that if the low periodical literature—of the metropolis in particular—were strangled by the firm hand of an enlightened and a benevolent legislative enactment, if public moral influence were so brought to bear on all the newspapers in the country as to make them feel that their interests lay (to make them ashamed were a Quixotic attempt) in a pure press, crime of all kinds would *pari passu* disappear, and a condition of society would emerge more in consonance with the blatant philanthropic and religious pretensions of a distracted nation.

I am, Sirs, yours truly,

D. CAMPBELL BLACK, M.D. Glasg.,
Professor of Physiology in Anderson's College Medical School.

Glasgow, Dec. 25th, 1894.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.

Owens College.

MANCHESTER is proud of its ancient Grammar School, which links it with the past. It is perhaps equally proud of Owens College, its one educational institution of the highest and most advanced type, but the product of the last fifty years. It delights in its purely local origin, for John Owens was a Manchester merchant, and in the fact that its growth and vigorous strength are due to the fostering care of Manchester citizens. On May 31st, 1845, John Owens signed his will, leaving over £52,000 to relatives, friends, charities, and servants, and the residue "for providing or aiding the means of instructing and improving young persons of the male sex (being of an age not less than fourteen years) in such branches of learning and science as now and may be hereafter usually taught in the English universities," coupled, however, with this fundamental condition that no one connected with the proposed institution should be required to submit to any test whatever as to

[1] Vide Cone: Crime et Suicide. Paris, 1891.

his religious opinions, and that nothing should be introduced in the education or instruction "reasonably offensive to the conscience of any student or of his relations, guardians, or friends under whose immediate care he shall be." He died the next year at the age of fifty-five. He was a bachelor, of somewhat delicate health, who had led a quiet and almost secluded life, had taken little or no part in public affairs, and was, therefore, but little known to his fellow townspeople. He had been a manufacturer and shipper, was successful in business, as was also his father before him. Comparatively little is known of his personal life, but evidence exists to show his interest in education, and that he thought much on the collegiate system he hoped to establish in Manchester. The residue of his estate realised £96,654 11*s.* 6*d.* None of the money, however, could be used for the purchase of property or for building. An escape from this difficulty was provided by Mr. George Faulkner, the chairman of the trustees, and an old friend of Mr. Owens, for he bought the late Richard Cobden's house in Quay-street, giving £4500 for it, and let it to the College until 1854, when he presented it to the trustees. The premises were extended from time to time at a cost of about £10,000. The institution grew and developed and the students gradually increased in number, so that at length a scheme for extension on a large scale was almost forced on the trustees. But before these trying days had been passed—and, indeed, for many years—the new College had a hard struggle for existence. The first complete session was opened in October, 1851, and the ordinary students numbered sixty-two; but in 1856-57 they had dwindled to thirty-three, and in 1860-61 were only sixty-nine. So far there was no medical department, though the Manchester Medical School was one of the most important in the provinces. It was founded by the late Mr. Thos. Turner in 1824, and in 1836 the prefix "Royal" was allowed on account of its "excellent equipment." In 1856 negotiations with the College took place on the question of amalgamation, but they were unsuccessful, the College authorities thinking the terms proposed too one-sided; so the matter rested for several years. In the meantime the position of the College gradually improved, and in 1867 the extension scheme was set on foot, with the result that the sum of £211,152 12*s.* 4*d.* was raised. Since then many large gifts and benefactions have been received for the endowment of special departments, and the College has had many valuable gifts of books, philosophical instruments, and other teaching appliances. The amalgamation of the school and College took place in 1872, and the buildings for the medical department were opened in 1874. The College in Oxford-road is now an extensive collection of buildings, and will be still further enlarged as time goes on. The important additions recently opened by the Duke of Devonshire have already been noticed in the columns of THE LANCET,[1] and it may be said that as regards convenience of arrangement, wealth of scientific appliances, and opportunities for research in all directions pertaining to medicine Owens College is well abreast of all existing schools of medicine. Clinical instruction is chiefly given at the Royal Infirmary, though other special hospitals are associated in this work. The distance between the College and Infirmary has sometimes been thought a drawback, but practically it is not found to be so. It is a little over a mile, and the break between close work at one place and then at the other is a relief and refreshment, and for those who do not care to walk there are tramcars which go from door to door, and cover the distance for a penny. The Infirmary and the College now work in thorough harmony, but for many years more or less friction existed. No doubt there were faults on each side. The Royal Infirmary was venerable, and its reputation high, before the College came into being, and instead of overlooking or excusing what seemed to be a somewhat supercilious assumption of superiority—natural, perhaps, to a young college recently manned by professors imported mainly from our old universities or from beyond the Tweed to bring light into Lancashire—the older institution was too sensitive and a state of chronic irritation was set up. This unfortunate feeling was not lessened by the ill-judged appointment to the chair of Surgery of a gentleman who, though an Englishman, hailed from Edinburgh. He was liked personally, and the feeling towards him was one of kindness and commiseration; but though he was well informed and had done some literary work he did not possess the qualifications required for admission to the Infirmary staff, so that he could only give clinical teaching by joining the Ancoats Hospital. After a few years this gentleman resigned, and a well-known member of the Infirmary staff is now the Professor of Surgery. All this, however, is a story of the past—the College has outgrown its youthful vanities, the Infirmary has recovered its equanimity, and the relations between the two are better understood. The establishment of the Victoria University, a teaching and examining body whose degrees have already acquired prestige and value, must have a stimulating effect on medical education in the north of England; while the three colleges of Leeds, Liverpool, and Manchester, already affiliated, will exercise a generous rivalry, tending to maintain in each a high standard of efficiency.

[1] THE LANCET, Nov. 10th, 1894.

Lead Poisoning.

A case of discreditable carelessness—to use a mild term—as to human life was brought to light the other week at an inquest on a girl who died from lead poisoning. She had been employed by a firm of dyers in Newton Heath in "noddling" yarns dyed orange or yellow, presumably by chromate of lead, the handling of which is notoriously dangerous. Three years ago two girls at the same works died from the same cause. Out of thirty-six girls employed the manager admitted that he only knew of three who had never been away ill from lead poisoning. The coroner said it was a most outrageous thing that girls should be allowed to commit suicide merely to supply yellow goods to foreign markets, and the jury returned a verdict to the effect that the deceased had died from lead poisoning caused by the firm neglecting to carry out the promises made by it three years ago.

The Smoke Nuisance.

The war between the smoke producers and those who object to their air passages being made receptacles for particles of carbon, each carrying its little cargo of empyreumatic filth and sulphurous acid or other noxious gas, shows signs of revival. A deputation from the Manchester Chamber of Commerce, representing chemical, iron, and dyeing industries, and brick, tile, and terra-cotta manufacturers, waited the other day on a committee of the corporation in reference to prosecutions for excessive smoke production. The matter is to be formally considered by the sanitary committee. The arguments used came from the pockets rather than from the minds of the deputation, and were of the usual stock character. Our air is sufficiently polluted as it is, and one wonders what would be the state of things if manufacturers and the users of dangerous lead compounds had all their own way. It will be interesting to see how the sanitary committee deals with this confessedly difficult matter.

Jan. 1st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Christmas and the New Year.

NOTWITHSTANDING the great depression of trade and commerce which has been prevalent here for so long, it has not prevented the usual flow of charity among the poor at this season. More than the usual number of "hot-pots" were distributed, providing a good dinner for a large number of families. In addition to this a large number of aged persons and children have been treated to substantial meals at St. George's Hall. It is very gratifying to add that the number of persons brought before the magistrates on New Year's Day was only half that of last year, while the city was altogether free from the shocking crimes which disgraced it last year on these festive days. The citizens have evidently found that it is quite possible to be both merry and wise.

Small-pox and Revaccination.

The recent scare caused by the importation of a few cases of small-pox has had an excellent effect in inducing many persons to undergo revaccination who otherwise would not have done so. Liverpool is so peculiarly situated that the importation of small-pox, as well as of other diseases, by sea or land is a contingency which may occur at any moment. For this reason it is of paramount importance that not only

should primary vaccination continue to be strictly enforced, but revaccination should be urged upon all persons before the attainment of adult life. It is astonishing to those who have made it their business to inquire to find that while some few persons have been vaccinated twice, thrice, or even four times, the greater number by far have never been vaccinated since infancy. Knowing as we do the almost absolute protection of a second vaccination, this state of things ought not to be. Without resorting to compulsion, much may be done by example and influence.

The Atmosphere of the Police Court.

Our stipendiary magistrate said lately in allusion to the polluted state of the atmosphere in the court over which he presides that it was the vilest hole in the city, a remark which was endorsed by the assistant prosecuting solicitor. It has now become a very old grievance, and as it must in the very nature of things become worse instead of better if not remedied, it is greatly to be hoped that the new year will see something done to rectify what is really a grievous scandal.

Jan. 2nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Edinburgh in 1894.

WHILE nothing of sensational interest has stirred medical Edinburgh during the past year a good deal has happened which has more than a merely passing interest. Some changes are the beginning of a future, even the possibilities of which can only be matters of surmise and speculation. To begin at the beginning of things it may safely be assumed that the number of medical students in Edinburgh has diminished; at the University this has certainly been the case, and it is almost equally certain that the same may be said of the number of purely extra-mural students, although this latter point is more uncertain, as until within the last year or two there was no attempt to ascertain numbers by any conjoint system of registration. The mere falling off in numbers is not in itself an evil, for all who knew the Edinburgh School saw and felt that it was terribly weighted by its numbers. Only in a great school, where teaching has evolved into an art, and where so much energy, time, and ability are lavished by a large body of teachers upon it, could matters have gone on as satisfactorily as they have done and could results have been as good. It is the character and quality of the teaching which have continued to attract students from all parts of the world, and which impress students who come to Edinburgh after experience of other schools. The preceding generation of teachers in Edinburgh contained men of outstanding eminence and world-wide fame, who by their individual qualities attracted students to the school. Now, it is not so much this as the character of the teaching which continues to attract. The teaching has attained its present standard through the impetus given to it by competition. The extra-mural school has been a strong, vigorous, and robust rival to the University, and has kept it more awake to the interests and needs of students than would otherwise have been the case, while the professoriate has also been kept more active. In the extra-mural school itself the competition of several lecturers on every subject has been amply sufficient to stimulate men to do their best for the students, and to endeavour to attract them to their prelections. While this has been good in its main effects, the system must inevitably have an undesirable side. The pecuniary motive has not been confined to the extra-mural school—the University professoriate has felt it and has been stimulated by it. It is difficult to estimate accurately the exact influence of it; with some men it has assuredly been an impelling influence, while with others it has almost as certainly not been felt as a motive in their work. The changes brought about by the Universities Commission will clear up this question. The individual student is no longer the representative of so many additional guineas to his professor, for the professors are now paid out of a central fee fund, and some of them have made fixed terms with the University Court on an average of preceding years, an average which in some cases has already fallen. The effect will be the complete elimination of the pecuniary motive so far as the individual professor is concerned, and ultimately the filling of professorial chairs by men whose work will be determined by purely scientific considerations. That this is desirable and the ideal to be aimed at there can be no question. Meanwhile during the period of transition and the occupancy of chairs by their present occupants the University finances are certain to suffer heavily, and we are likely to hear a good deal on this point in the next few years.

The diminution in the number of students is mainly to be attributed to the altered regulations regarding the preliminary or entrance examination made by the Commission. The standard is a new one, and neither schools, tutors, nor candidates know yet what it is. The cry was to raise it, but the result has been so disastrous to the candidates that already influential voices have been raised against the results, if not the standard. Probably the mistake lies in the standard having been too suddenly and abruptly changed. The past year has been the date of another important departure on the side of the University. The Commission put it within the power of the University Court to admit women to the degree in medicine, while at the same time permitting them to make arrangements for their instruction outside the walls of the University. The Court, taking advantage of this, has recognised the two medical schools for women in Edinburgh as providing instruction which will be accepted by the University for examination and graduation. That this will have an important influence upon female medical education in Edinburgh is inevitable, and will doubtless encourage and strengthen it. What the ultimate issue will be, and what the relations of the University may be to it in the future, will depend probably upon its success; meanwhile the tendency and the feeling are, on the whole, against mixed classes, and at present the University could hardly take the women inside its walls on any other terms, and these terms would be too unpopular for the University to adopt. In the extra-mural school the most notable incident has been the opening of a new set of lecture rooms in Bristo-place, which are being run with considerable vigour and perhaps even a certain aggressiveness, and threaten to be a not inconsiderable rival to some of the older places. In the Royal Infirmary matters have gone on quietly and smoothly. The new superintendent is an economist, and has succeeded in restraining expenditure. In ward work abdominal surgery and brain surgery have been prominent, and if there is a long death-roll there have also been brilliant and encouraging successes. At the medical societies there has been some increased activity, and the Medico-Chirurgical Society has during the past two years been unusually active, and has had important discussions on subjects of special interest to the profession at the time they took place. As regards the public health of the city, the year has been characterised by a considerable epidemic of small-pox, which has taxed the resources of the Public Health Department and has demonstrated afresh the value of vaccination to the community. Amongst other zymotic diseases scarlet fever and measles have been epidemic in certain localities. The Royal College of Physicians has made arrangements for the preparation of antitoxin for the treatment of diphtheria, the difficulty of obtaining a sufficient supply of serum being the reason for this novel departure. In the latter part of the year the new buildings for the reception of private patients at the Morningside Royal Asylum were opened, and represent the most forward and ideal arrangements for the lodgment and care of the insane that the century has produced. In this department of medicine the retirement of Sir Arthur Mitchell from the Senior Commissionership in Lunacy dates from the end of the year; and the appointment of a successor is awaited with some anxiety, as it is felt that considerations largely of a political nature may unduly influence the election. The most noteworthy contributions to the more permanent form of medical literature have been Dr. Balfour's "Senile Heart" and Dr. Wyllie's "Disorders of Speech." The former may fairly be considered as its author's masterpiece. He has been for a quarter of a century regarded as an authority on cardiac affections, and this new book will not lessen his reputation. It bears traces of more care and labour devoted to its preparation than characterised his earlier work. It reads like a classic of the earlier part of the century, and while possessing the excellences of these is not devoid of their faults. From the standpoint of modern pathology, many points could be adversely criticised; but it contains much shrewd observation and advice. Dr. Wyllie's work is full of interest and is characterised by the power of intellect, the wealth of idea, and

the faculty of combining facts which those who know Dr. Wyllie recognise him as possessing in quite an exceptional measure, and make him one of the strongest personalities in the Royal Infirmary and the School of Medicine. Two new hospitals have been added during the year to the medical charities in the city—namely, the Victoria Hospital for Consumption and the Deaconesses' Hospital.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Small-pox in Dublin.

THE small-pox epidemic appears to be gaining ground, more especially on the south side of the city, and some of the suburbs are not exempt from the disease; during the week ending Dec. 22nd 113 cases were admitted to hospital, and the number under treatment at the close of that week amounted to 131, exclusive of 126 convalescent patients in the South Dublin Union Small-pox Hospital, Kilmainham. At a recent meeting of the guardians of the North Dublin Union a sealed order was received from the Local Government Board declaring, in view of the threatened small-pox epidemic, that their union should provide such medical aid, nurses, and accommodation as might be requisite for all persons affected by, or threatened with, small-pox, and that they should provide a joint hospital with the South Union, or a separate hospital. Mr. Stafford, Local Government Board inspector, who was present, said that in his opinion the sealed order brought them face to face with rather a serious state of affairs; for they had not yet made any arrangements themselves for treating small-pox patients, and the order threw on them the responsibility of not only making arrangements for the sick poor suffering from small-pox, but for the whole of the inhabitants of the North Dublin Union. The responsibility was rather a large one, and Mr. Stafford was afraid the guardians had not made sufficient provisions for it. He thought they would have to look out for a site for a convalescent hospital for small-pox patients. After some discussion as to possible sites it was agreed that a committee should confer with Mr. Stafford on the subject. It may be mentioned that the Hardwicke Hospital have twenty-six beds always at the disposal of the city for small-pox; but as the hospital authorities have been requested to accommodate more they have offered to place the whole hospital at the disposal of the citizens for small-pox cases, and have withdrawn all their nurses from private cases, and so soon as arrangements as to expenses have been made with the guardians of the North Dublin Union they will admit small-pox patients to all available beds in the hospital. The present epidemic shows the neglect of vaccination that existed among the poorer classes in Dublin, and the absolute necessity for revaccination.

Lunatics in Workhouses.

The Local Government Board have issued a circular on the admission and treatment of lunatics in workhouses in Ireland. The Board state that under existing laws for the relief of the destitute poor the guardians have no power to detain the insane in workhouses. In practice, however, they are detained because the district asylums are usually so overcrowded that applications for admission under the forms prescribed by the Privy Council rules cannot in many cases receive attention; but the fact ought not to be lost sight of that in all cases of alleged unsoundness of mind unaccompanied by destitution a workhouse is not the place for the reception, treatment, or custody of the insane. From a legal point of view the guardians are under no obligation to receive lunatics except when admitted as destitute persons or when discharged from an asylum for transfer to a workhouse, under the provisions of Section 2 of the Lunatic Asylums (Ireland) Act of 1875 (38 and 39 Vic., cap. 67). With reference to persons who have been admitted to a workhouse as destitute and who on admission, or at a subsequent period, are found to be insane, the Local Government Board have always held that if their insanity is of such a character as to call for the use of mechanical restraint immediate steps should be taken to apply for their admission to a properly equipped lunatic asylum.

Eye, Ear, and Throat Hospital, Cork.

The late bazaar, styled "Donnybrook Fair," held for the purpose of building a new Ophthalmic Institution in Cork, has succeeded beyond the expectations of its promoters, the handsome sum of £4000 having been obtained for the required purpose. This sum, added to the amount previously subscribed, makes a total of £7000. Lady Arnott, who originated the collection of subscriptions and the bazaar, obtained at her stall in the bazaar the large sum of £557.

Presentations.

Mr. J. J. Murphy of Dublin, on the occasion of his recent marriage, has been presented with a purse of sovereigns, and a fruit service and star set with brilliants for Mrs. Murphy.—Mr. Alexander Gordon of Rathmines was last week the chief guest at a complimentary dinner given on his recovery from a severe illness, and was presented with a gold shield pendant. A valuable gold bracelet with diamond settings was also presented to Mrs. Gordon.

Jan. 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Ganglion.

THE means usually resorted to—prolonged pressure, forcible rupture, subcutaneous puncture, seton—for the cure of these troublesome cysts do not always prove satisfactory, the severer methods of treatment being frequently objected to by the patient. Professor Duplay of Paris has cured fifteen cases by having recourse to the classical treatment of hydrocele with iodine injections.[1] The skin over the ganglion having been carefully disinfected, a Pravaz's hypodermic syringe is sterilised and filled with the tincture of iodine of the French codex. The needle is plunged into the most bulging part of the cyst until its point reaches its centre, care having been taken by previous displacement of the skin to secure non-correspondence of the skin and cyst punctures when the cutaneous covering is allowed to resume its natural position. From five to ten drops (average, six or eight) of the tincture are slowly introduced into the cyst, the pressure necessary being often great when the ganglion is tense. The needle is then quickly withdrawn and the displaced skin allowed to retract. A little gentle massage of the tumour is practised, a pad of aseptic wool is placed over the spot, and the joint is immobilised and subjected to pressure by means of several layers of wool and a bandage applied. The injection provokes some pain, irradiating in the case of wrist ganglia to the forearm and hand. This pain may last for a couple of days, when it generally disappears. When, on the third or fourth day, the dressing is removed the cyst is found to have already shrunk. The part, although tender to the touch, is not inflamed. The compressive dressing is renewed, and in five or six days the ganglion has disappeared. Should it still persist—one injection generally suffices—the operation may be renewed. Most of Professor Duplay's cases were treated several months ago, and no relapse has been noted.

The Restoration of the Nose by Martin's Method.

M. Martin of Lyons has invented a metallic substitute for the nasal bones, the absence of which is so often the cause of failure in the Tagliacotian operation. To this bridge is fixed a metallic tripod, whose office it is to support the flaps. Unfortunately the excellent result at first procured is finally discounted by the suppuration excited by the tripod, which is then eliminated. M. Chaput[2] avoids this *contretemps* by plunging the extremities of the tripod into holes bored in the surrounding bone. This is done in order to place the ends beyond the reach of suppuration germs. In this way the apparatus is tolerated for ten or fifteen months without inconvenience. M. Chaput employs platinum for the fashioning of the tripod support, but he opines that the less costly silver-gilt would do as well. Of two cases operated on by him one was quite satisfactory, the restored organ being æsthetically a good imitation. The second case was a comparative failure, the tripod having been made too large.

Laryngotomy as a Diagnostic Measure in Epithelioma.

M. Manoury of Chartres[3] had recently under treatment a man aged thirty-eight, whom he found at his first visit in a state of asphyxia. Tracheotomy was at once performed.

[1] Archives Générales de Médecine, December, 1894.
[2] Société de Chirurgie, Dec. 26th, 1894.
[3] Ibid.

Epithelioma of the larynx was diagnosed, but confirmatory evidence was, under the circumstances, unobtainable. Median laryngotomy was accordingly performed, and the existence and extent of the (epitheliomatous) growth having been thus discovered the entire larynx was, *séance tenante*, removed by Perrier's method. On the thirteenth day the patient was able to drink, and on the sixteenth day he ate as usual. The operation was performed on Nov. 3rd, 1894, and the man was presented to the society quite well. M. Quénu approves of the preliminary laryngotomy in these doubtful cases, and as lately as a week ago he had recourse to the same proceeding.

Antitoxin.

On and after to-day, Jan. 1st, 1895, applications made to the Pasteur Institute in the name of a physician or of the family by the mayor, prefect, sub-prefect, and *bureaux d'hygiène* of any part of France will result in the immediate despatch of a tube of antitoxic serum. This arrangement is only provisional, it being hoped that depôts of antitoxin will at no distant date be established in the provinces. It will thus be seen that M. Roux and his assistants have not been idle. Indeed, both the Institute authorities and the public have worked with a will, the latter having, through the *Figaro* and by means of gifts made directly to the Institute, contributed up to Dec. 31st, 1894, no less a sum than 611,000 francs (£24,440). This does not include 100,000 francs (£4000) just voted by the Chambers, and which will doubtless become an annual subsidy. On Oct. 12th the Pasteur Institute possessed for immunising purposes a stud of twenty horses. This stud has now been increased to 136 horses, a total that will probably be ultimately increased to the maximum of 150. Fifteen of these animals are at the State Veterinary School of Alfort, where they are kept under close observation (with regard to pulse, temperature, &c.) by Professor Nocard and his pupils. Forty-two horses are located in the old abattoirs of Grenoble placed at M. Roux's disposal by the Municipal Council of Paris. Of these, twenty are kept by the municipality at a cost of 20,000 francs (£800) a year for the benefit of the Paris hospitals and poor. At Villeneuve-l'Étang—a property ceded by the State to M. Pasteur in 1886—there are seventy-nine horses cared for by a capable veterinary surgeon and his staff. While the regulation six litres of blood (yielding about half that quantity of serum) are being drawn from the jugular vein the animal's attention is easily distracted by a handful of carrots, which he munches contentedly. On the day following the phlebotomy immunisation is recommenced and continued for five days. A rest of fifteen days follows, and then another bleeding may be practised. That the animals flourish under this *régime* of good feeding and periodical bleedings is proved by the presence in good health at Alfort of a sturdy Brittany pony which has hitherto supplied no less than 420 litres of blood. Professor Behring spent a few days of last week in Paris in order to visit Dr. Roux and inspected the arrangements now being made to combat diphtheria in this city. During his stay he visited Villeneuve-l'Étang.

Jan. 1st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Antitoxin Treatment of Diphtheria.

AT a recent meeting of the Society of Physicians of Lower Austria, certain practitioners reported on the results of the antitoxin treatment of diphtheria as seen in their private practices. All the speakers agreed that the treatment was highly satisfactory. Last week the first preparations of the serum prepared in the Austrian State establishments, under the care of Professor Paltauf of Vienna, were administered at the Vienna Hospital for Sick Children; and it is hoped that by the end of next month it will be possible to supply the practitioners of the empire with this remedy. A second discussion will take place at the Vienna Society of Physicians early this month.

Hypnotism in Hungary.

The Hungarian Government is now intending to prohibit by law the practice of hypnotism by all except physicians. In Austria hypnotic proceedings are strictly relegated to physicians who have graduated since 1851.

Cholera in Austria.

Cholera is now gradually decreasing in Galicia, and the number of cases in the past week has been reduced to 177, with 94 deaths; but it is feared that the epidemic may show more activity in the spring. The epidemic at the present moment not being very fierce would, it seems, afford a good opportunity for studying its course and causes; but the Austrian Government, no less than the leading medical lights here, do not apparently take any great interest in what is a chronic question with them. The study of the disease is practically neglected, and the therapeutic measures used are all on the old lines.

The General Hospital Question in Vienna.

The desolate condition of the buildings of the medical department of the celebrated Vienna University is well known to all, medical and lay, who visit Vienna. The Government have promised for years to erect new clinical wards, but it would seem that the consideration of this question is now postponed *ad calendas græcas* by bringing forward a new project. This consists of the erection of a big general hospital outside the town to take the place of the present general hospital which is located centrally. The whole faculty is in opposition to this new scheme, and naturally.

The Resignation of Dr. Wekerle.

All who have visited Hungary during the last two years, and especially the members of the last International Congress of Hygiene and Demography held at Budapest, will learn with the deepest regret that Dr. Wekerle, their amiable host, has resigned his high official position as "minister-president." If is his eager activity that Hungary has to thank for much of her progress in the fields of public sanitation.

THE INDIAN MEDICAL CONGRESS.

As we announced last week the work of the Indian Medical Congress was begun at Calcutta on Christmas Eve, when Surgeon-Colonel R. Harvey delivered the opening address. From the list of papers we then published it will be seen that the subjects discussed covered a wide field of medical science, and we propose to present these papers to our readers as far as space will permit. The proceedings closed on Dec. 29th, after a most successful session.

THE SECTIONS.

MEDICINE.

Nasha Fever.

Mr. LAWRENCE FERNANDEZ, L.R.C.P. & S. Edin., &c., read a paper on Nasha Fever, the Nakra Fever of the North-West Provinces, otherwise called Nakra Jawhar, which is a type of fever peculiar to India, and is, perhaps, most prevalent in Bengal. Mr. Fernandez explained that the disease is characterised by a sharp attack of fever of a remittent type. It is sometimes intermittent; the temperature is always over 100° F., even when intermittent. Preceding the fever a peculiar characteristic congestion of the bloodvessels of the mucous membrane of the septum narium, as also of the Schneiderian membrane, takes place. This congestion, even after the accession of the fever, is really what attracts attention. The congestion sometimes takes place on one side of the septum, and sometimes both sides are affected. There is very often no pain; the surface of the septum is raised and presents a red appearance. Some practitioners consider this swelling and the accompanying fever to be local manifestations of a slight congestion of the brain—a belief in which the reader of the paper is inclined to concur. Others consider the swelling to be a catarrhal condition of the mucous membrane of the nose. The usual symptoms of fever are present, marked constipation and malaise are very prominent, and the appearance of the patient may be well defined by his being compared to having a "hazy" or "smoky" appearance. The nervous symptoms are peculiar. There is great frontal headache, also severe pain at the back of the neck, shoulders, and small of the back. Sometimes the pain at the back of the neck is very severe, and the accompanying febrile symptoms remind one of tuberculous meningitis. The face appears flushed, with a feeling of heat and fulness in the head and the pupils are contracted.

These symptoms continue from three to five days, when the swelling decreases and the fever subsides without any treatment whatever except the regulation of the bowels by a purgative. The swelling never suppurates. On the sudden subsidence of the swelling, which does occasionally occur, grave symptoms sometimes follow; the fever becomes higher, then delirium, coma, and death, but such a fatal result is rare. Occasionally, with the fever and nasal inflammation, an ill-defined rash appears on the body, rose coloured and in small patches, with which there are generally bronchial symptoms. Neither antipyretics nor antiperiodics have any effect on the disease. One attack predisposes to another, but the prognosis of the individual attacks is favourable. Both sexes are liable; but females are rarely attacked and never before puberty, and males not before the age of thirteen or fourteen. It does not occur after the age of fifty. The disease is prevalent between April and August, and is seldom seen in winter. The attacks occur at intervals of a month, a fortnight, or a week. All classes are liable, but the disease is most often seen in native fishermen, *dhobies*, gardeners, and *dhangurs*. Mahomedans in Bengal are not as prone to it as Bengalees. All occupations necessitating exposure to inclement weather tend to induce the disease. It is believed that the eating of stale cooked rice with cold water—a practice very common among the poor of Bengal—as also the drinking of the water from young coccanuts, and the eating of the very young palm induce the disease, and anything which lowers the vitality predisposes to an attack. Opinions are divided as to whether Nasha fever is due to malaria, but quinine has no effect. It is prevalent in malarious places, and the fever which accompanies or follows it is preceded by ague. Opium is said to give great relief, whereas arsenic has no effect. There is congestion of the mucous membrane of the nose and frontal sinuses. The mucous membrane is slightly raised, but there is no inflammation. On pressure there is a doughy feeling, but suppuration never occurs. The mucous membrane becomes hypertrophied after repeated attacks. The blood which escapes on puncture of the nasal tumour is of a darkish colour and poor in plasma. Examination of the blood under the microscope shows an increase in the number of colourless corpuscles, the red corpuscles being crenated. Arsenic and quinine have no effect on the disease, but opium relieves the pain in the neck, back, &c. Tartar emetic used as a diaphoretic gives good results. A brisk saline purgative is all that is needed in the simpler cases. The usual method of treatment and that which gives most relief is depletion, which is done either—(1) by two bundles of *dhool* grass introduced into the nostrils, friction and pressure (native method); (2) by pricking with a needle; or (3) by a few punctures with a bleeding lancet. A small quantity of blood escapes and the sufferer is restored in a few hours to perfect health. This plan of treatment, however, is only palliative. The great objection to it is that frequent repetition conduces to hypertrophy of the mucous membrane. The local application of astringents, such as a solution of tannic acid, or a 10 per cent. solution of cocaine, sometimes gives relief. The application of akanda juice (Calotropis gigantea) to the mucous membrane also gives relief. The plan which Mr. Fernandez has adopted is a brisk purgative and the injection of cold water or iced water up the nostrils twice or thrice a day, with diaphoretics internally.

A paper on the same subject was read by Mr. NARESH CHANDRA MITRA, M.A., M.B. He said: "Internal remedies are useless. Only local treatment is effectual. This consists in free puncture of the Schneiderian mucosa over the swelling, which is followed by free hæmorrhage and immediate relief. The local application of lunar caustic, or of the milky juice of akanda, is also recommended."

Mycetoma.

Assistant-Surgeon J. E. BOCARRO, L.M. & S. Bombay, Hyderabad, Sindh, discussed the subject of Mycetoma. He said: "The scientific history of mycetoma, or madura disease, dates from the year 1874, when Dr. Vandyke Carter published his invaluable monograph demonstrating its parasitic nature. Dr. Carter's investigations led to the conclusions that both forms, the black and the pale, or the melanoid and ochroid varieties, resulted from the infection of one and the same parasite, the chionyphe Carteri. The pale form was supposed to be merely a defaced state of the black. Drs. Lewis and Cunningham admitted the fungoid nature of the black particles, but were disposed to consider them as accidental growths, and not in any way connected with the causation of the disease. The fungoid nature of the roe-like particles in the white variety they denied *in toto*, regarding them merely as metamorphosed fat. Recent investigations in Europe confirm the parasitic nature of the disease. Bassini in 1888 pointed out the mycelial nature of the tumour in a case of the black variety in Italy. Dr. Kanthack in 1892 likewise demonstrated the fungus origin of the disease, and attempted to identify it (the white variety) with actinomycosis. In 1893 Dr. Boyce and Dr. Surveyor demonstrated both forms of this disease as being essentially fungoid growths, and, more than that, they have been able to indicate differences under the microscope existing between the fungi of the two varieties of the disease. They say: 'We, on the other hand, will bring forward reasons for believing there are at least two distinct fungi—one a very highly organised species, the other a very delicate and lowly organised type, presenting very many of the characters of actinomyces'; and they further add that, while some of the leading features of the roe-like particles favour a relationship with actinomyces, from others they cannot, in their present state of knowledge, draw any conclusions. In the course of the past year Dr. Boyce forwarded to the Civil Hospital, Hyderabad, Sindh, a number of glycerine-agar tubes for inoculation, and these Dr. Keith (late civil surgeon, Hyderabad) and myself inoculated with particles from fresh specimens of both black and white varieties. Of these inoculations Drs. Boyce and Surveyor write that they have not yet been able to cultivate the black fungus; but that in the case of the white variety they have met with success. From these cultivations it is seen that the streptothrix from the white variety of mycetoma resembles very closely the streptothrix of actinomyces. Subcutaneous inoculation of rabbits, guinea-pigs, monkeys, and rats with the artificial culture just referred to gives rise to a local reaction, and following it the production of a tumour of slow growth, which on section is found to bear the characters of the original inoculated matter. I may add that in my hands direct inoculation of rabbits and dogs with fresh particles from either variety has hitherto proved a failure. With regard to the fungus origin of the disease, the fact that the disease begins *ab externo* has an important clinical bearing. Clinical observations made by me in the Civil Hospital, Hyderabad, help to establish this conclusion. All cases of early growths have been cases of superficial growths. Dissection of the growth during operation, or sections of the diseased part after excision or amputation, afford evidence of the disease beginning generally in the loose cellular tissue, often in the subcutaneous cellular tissue, thence subsequently extending along muscular and tendinous sheaths to the other soft structures, and finally invading the hard structures. The observations apply, in all respects, to both forms of the disease, the black and the pale. The clinical points are as follows: 1. The cause assigned—viz., wounds, sores, the prick of thorns, &c. The *babul* (Acacia arabica) thorn is frequently mentioned as the primary source of irritation, and I have myself many times detected the points of these thorns embedded in the tumour. 2. The occupation of the patient, the disease being common among tillers of the soil or in those who have at some time or other of their lives exposed themselves to influences such as commonly surround people of the agricultural class—e.g., boatmen, shepherds, pedlers, potters, &c. 3. The common seat of the disease, the feet and hands being generally affected, the former in the majority of cases. In over 80 per cent. of the cases observed in the Hyderabad Civil Hospital these were the usual situations. 4. Lastly, and above all, the fact that the disease could be completely eradicated by excision of the superficial growth. As regards the consideration whether the varieties are simply transitional stages of one and the same fungus, as Dr. Carter holds, or whether the two forms are perfectly independent of each other in their morphological nature, as Drs. Boyce and Surveyor have pointed out, I adduce the following clinical points in evidence of the latter view. (*a*) The general historical data for either variety are the same, with the important difference that in all cases patients have distinctly stated, with reference to both forms, that from the very earliest indication of the existence of the growth, when one or more mammillated excrescences appeared upon the surface and burst, the sinuses gave exit throughout the course of the disease either to pale or black particles, but never to both kinds at the same time, or to one kind first and at a later date to another. (*b*) Anent the

idea of defacement of the fungus, while one would naturally expect a period of stasis in the growth of the tumour, there was, on the contrary, following the periodical extrusion of particles, observed a more or less gradual increase in its size, and in no instance was there noted at any time limitation or retrogression of the growth. (*c*) Sections and cross-sections have not, in my experience, shown any admixture of the two kinds of fungoid particles in one and the same specimen; on the other hand, there was a curious completeness manifest in the anatomical characters of each individual variety. (*d*) In the dissection of infiltrated parts, on following up the advancing course of the disease along tendons, fasciæ, and areolar tissue to its termination, where it must be admitted the disease is to be found in its earliest stage of development, there are invariably discovered pale particles in the pale kind, and black particles in the black kind. So far as the naked-eye appearance goes, there are no transitional stages of growth from one to the other. (*e*) Careful excision of these terminal sites of the disease effectually cuts off all chances of recurrence; if not, the disease tends to relapse, in which case the pale variety is followed by the pale and the black by the black form of growth."[1]

OBSTETRICS, DISEASES OF WOMEN AND CHILDREN.

Biliary Cirrhosis of Children.

Mr. Jogendro Nath Ghosh, L.M.S., dealing with this disease, said: "Its onset is insidious, it usually prevails among infants under the age of one year, and it seldom attacks children after they have passed the third year. The attack generally commences about the seventh or eighth month, chiefly at the period of dentition or at the mother's next conception. The children of some parents are particularly liable to the disease. In one family I have observed fourteen children of the same parents die one after the other. Cases of attack about the third or fourth month, or even a few days immediately after birth, have also been noted. Children in Calcutta, as well as in the districts of Lower Bengal, whether malarious or non-malarious, are equally subject to it. It spares neither the rich nor the poor, though the well-fed children of the wealthy and the middle classes are more liable to it than the ill-fed children of the poorer classes. Mahomedan and Eurasian children suffer less than Hindus. Hardly any cases are seen among Europeans. Children who are never or only for a short time put to the mother's breast, and are fed on cow's, goat's, or ass's milk, or with different kinds of artificial food, enjoy no immunity from this disease. In families where the disease has prevailed I have noticed a few children escape apparently from being nourished by healthy wet-nurses. When the disease was first noticed in Calcutta more cases were found among male than among female children, but of late the proportion seems to be less. The female children mostly attacked are usually the first-born of the parents, and are the objects of great care in a family. It has been observed that a female child escapes the malady after the successive deaths of several males who preceded her, though again the next male child succumbs to it. Children of very healthy parents are not exempt, and the disease appears to be quite unconnected with long-standing purulent discharges, scrofula, syphilis, malarious fever, or any chronic constitutional disease. It has also been noticed that in some cases the later children of some parents escape the disease after the earlier ones have all died from it. The enlargement of the liver is gradual and is unattended with pain. The subsequent contraction is, however, rapid. The termination is generally fatal, death being mostly due to cholæmia. The disease runs its course in from three to twelve months, though one case has been known to end fatally within a fortnight of the attack; but in two other cases the patients had lingered for three years. In my experience, out of about 400 cases only six have recovered. Persistent jaundice, I believe, prognosticates a fatal termination. The disease may be defined as a painless enlargement of the liver, hard and resistant to the touch, beginning with slight fever, occurring in children only, and terminating almost invariably in death. Usually the first symptoms are that the liver has attained a considerable size before anything is suspected. The symptoms which attract the mother's notice are nausea, occasional vomiting, sallow complexion, warmth of hands and feet, and a certain amount of constipation and straining at stool. The child refuses food, gets irritable, wishes to lie on damp ground, and has a little fever towards night or early in the morning. Thirst and an icteric tinge are also noticed. When the child is brought under the physician's observation the liver is usually enlarged, at times so considerably that it extends as far as the umbilicus or even beyond it to the iliac crest. The anterior margin of the liver is well defined, prominent at first, and feels smooth and rounded; gradually it becomes thinner, assuming the shape of a knife-back edge, and at the last stage it can be grasped by the fingers. The enlargement is uniform, hard, and resistant, painless at first, but gradually getting painful when jaundice supervenes. The left lobe generally enlarges first, sometimes reaching as far as the spleen, which also in most cases enlarges simultaneously. Occasionally the right lobe enlarges so much that its anterior border overlaps the left lobe, and the notch between the lobes is so displaced to the left as to be mistaken for the hilum of the spleen. The liver gradually fills the abdomen, which bulges, and the superficial veins become prominent. At first there is no marked change; after a time the features exhibit a dusky appearance; later the skin becomes hard and dry and the complexion slightly yellow; the feet and hands may become puffy. The spleen is generally hard and enlarged, and constipation is a well-marked, obstinate symptom. The stools are yellowish at first, then clayey and muddy, and lastly whitish and devoid of bile. The urine, from being clear, gradually becomes bile-tinged, and lastly deep yellow, saffron-coloured, the stain of which does not disappear on washing. There is very little or no perspiration. Fever is slight at the beginning, but it increases with the progress of the disease, and the maximum is reached when the jaundice is pronounced. The fever is not preceded by any rigor as in ague. In some cases fluid accumulates in the peritoneal cavity, with œdema of the hands and feet. The onset of the intense and persistent jaundice which occurs in the later stage of the disease is a symptom of the gravest import. After the appearance of jaundice the size of the liver diminishes. In a few cases I observed the contraction to be so very rapid that in forty-eight hours it receded from the umbilicus to within the margin of the costal arch. The contraction has often been mistaken for a favourable symptom. The main causes of this serious malady are, I believe, unwholesome food and faulty digestion. The milk either of the mother or of the cow is the principal article of food for our infants. Mahomedans and Eurasians feed their children occasionally with animal broth. The Hindu mother always nourishes her children from her own breast, and it is among the Hindus that the disease is most prevalent. As regards the mother's milk, the practice is not uncommon for a mother in a state of pregnancy to suckle her child. Her system must then be undergoing a change, rendering her milk quite unfit for the child she is nursing. Cow's milk is so much adulterated in large centres of population that it is quite unsuitable for infant food. Besides adulteration of milk, the cows are kept in unhealthy sheds and fed with refuse &c. Great carelessness also prevails in keeping the milk. The vessels are not properly cleaned, and stale milk is often sold as fresh. Irregularity in feeding and over-feeding the infant are common. Whenever it cries milk is poured down its throat in order to pacify it, irrespective of quantity or quality or the time or the interval after which it is fed. The duration of the disease is from three to nine months, death usually occurring from the fifteenth to the eighteenth month of life. The prognosis is extremely unfavourable. In my experience out of about 400 cases only six recovered, but in three of them the diagnosis is open to doubt. Treatment is most unsatisfactory because the parents will not carry out the directions prescribed. I believe the best hope of success lies chiefly in change of diet. I always forbid the mother to suckle the infant, and substitute a healthy wet-nurse or a specified quantity of cow's milk suitably diluted according to the age of the infant. Many medicines have been tried—e.g., mercury, iodide of potassium, hydrochlorate of ammonia, phosphate of soda, &c., but I cannot attribute any benefit to them. Laxatives and cholagogue purgatives are required for the obstinate constipation of the early stage. Recently I have been using the freshly prepared juice of the leaves of Nyctanthes arbor tristis or the *sinli*, in teaspoonful doses taken in the early morning, and this has usually acted well except in the late stage of marked jaundice. Change of climate is undoubtedly beneficial in the early stage, but later it has no effect."

[1] References to papers &c.: Upon the Existence of More than One Fungus in Madura Disease. Phil. Trans. Royal Society of London, vol. 185 (1894), B., pp. 1-14. Tabular Statement of 100 Cases of Mycetoma, THE LANCET, September 30th, 1893, and Indian Medical Record, vol v., 1893.

Medical News.

UNIVERSITY OF LONDON.—The following gentlemen have passed the B.S. examination for Honours in Surgery :—

FIRST CLASS.

Fisher, John Herbert (Scholarship and Gold Medal), St. Thomas's Hospital.
Davies, Hugh (Gold Medal), Guy's Hospital.
* Wallace, Cuthbert Sidney, St. Thomas's Hospital.
Richardson, Sidney W. F., B.Sc., St. Thomas's Hospital.

SECOND CLASS.

Smith, William Robert, King's College.
Cowen, George Hebb, London Hospital.
* Obtained the number of marks qualifying for a gold medal.

FOREIGN UNIVERSITY INTELLIGENCE. — *Berlin:* Dr. Loewy has been recognised as *privat-docent* in Physiology, Dr. M. Mendelsohn as *privat-docent* in Medicine, and Dr. Wernicke as *private-docent* in Hygiene. Professor Kohlrausch of Strasburg has accepted the offer of the charge of the Physico-Technical Institute in succession to Professor Helmholtz.—*Paris:* Dr. Arsonval has been appointed to the chair of Medicine in the Collége de France in succession to M. Brown-Séquard.—*Montpellier:* Professor Mairet has been appointed Dean of the Medical Faculty for three years.—*Lemberg:* Dr. Josef Nusbaum has been appointed Professor of Descriptive Anatomy and Histology, and Dr. Johann Prus Professor of Pathological Anatomy and General and Experimental Pathology.—*St. Petersburg (Military Medico-Chirurgical Academy):* Dr. Skorichenko has been recognised as *privat-docent* in General and Experimental Pathology.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced :—Dr. Josef Schröter of Breslau, where he ranked as professor; he was a great authority on fungi. His death, which was somewhat sudden, was due to an affection of malarial origin, the foundation of which was laid in his last summer's journey for botanical research to the southern part of Asia Minor.—Professor F. A. Flückiger, a well-known author of pharmaceutical works. Until a year or two ago he was professor at Strasburg, but was then obliged to give up work on account of ill health. He had since been residing in Berne, where he died.—Dr. Studiali, Professor of Physiology in the University of Pisa.—Dr. Yermolayeff, formerly Professor of Anatomy in Kazan.—Dr. L. de Crecchio, Professor of Forensic Medicine in the University of Naples.

BEQUESTS AND DONATIONS TO HOSPITALS.—The late Mr. Samuel M. Gibbs of The Mount, St. Leonards-on-Sea, has bequeathed £250 each to the Hospital for Women, Soho-square, London, and the Samaritan Free Hospital for Women and Children, Marylebone-road.—Mr. George Hibberd, late of Leyton, has bequeathed £1000 each to the London Hospital and the City of London Hospital for Diseases of the Chest, Victoria-park, and £250 each to the Convalescent Home at Bexhill, the Convalescent Home, Walton-on-Thames, the Children's Hospital, Walthamstow, the Walthamstow Dispensary, and Mrs. Gladstone's Convalescent Home at Woodford.—The late Mr. John P. Kidston of Northaw, Herts, has bequeathed £250 each to the Potter's Bar Hospital and the Herts Convalescent Hospital.—Vice-Admiral C. F. F. Boughey, late of Richmond, Surrey, has bequeathed £100 each to the Hospital for Diseases of the Chest, Brompton, and the Free Cancer Hospital.—The late Mr. James E. B. Stevenson of Clapham-park has bequeathed £100 to the British Home for Incurables, Clapham-rise.—The Corporation of London has voted the following grants—namely, 50 guineas to the Brixton, Streatham-hill, Herne-hill, Tulse-hill, and Angell Town Dispensary (commonly called the Brixton Dispensary); 100 guineas to the Middlesex Hospital; 75 guineas to the West Ham Hospital; 25 guineas to the Livingstone Cottage Hospital for Dartford and District; 100 guineas to the City of London Hospital for Diseases of the Chest; 50 guineas to the Great Northern Central Hospital, Holloway-road, 20 guineas to the Brabazon Home of Comfort for Incurables at Reigate; and 20 guineas to the Women's Convalescent Home Association at Great Wakering.—The late Mr. Thomas Dunn of Prince's-gardens, South Kensington, has bequeathed £105 each to the Royal Sea Bathing Infirmary at Margate, St. Thomas's Hospital, London, St. George's Hospital, London, King's College Hospital, London, York County Hospital, the General Infirmary, Gloucester, and the Cheltenham Hospital.—Mr. George Simpson, late of Wray Park, Reigate, has bequeathed £250 each (free of legacy duty) to the Children's Convalescent Home at St. Leonard's-on-Sea, the Hospital for Women, Soho-square, London, and the Samaritan Free Hospital for Women and Children, Marylebone-road.—An anonymous friend has sent a donation of £100 to Guy's Hospital, London.—The directors of the Dundee Royal Infirmary have received a donation of 400 guineas from Mr. and Mrs. David Carmichael of Dudhope-terrace for naming two cots in the children's ward of the infirmary. Towards the New General Hospital Fund, Birmingham, £100 have been received, being the net proceeds of the recent cycle parade, and a further sum of £100 has also been received from the Muffs and Duffers charity cricket match.—Mr. Henry Whiting has given a donation of £100 to the Chelsea Hospital for Women, and £10 to the Convalescent Home in connexion with it.—The late Rev. George Heron of Moore, honorary Canon of Chester, has bequeathed £300 to the Hospital for Incurables, Putney Heath.—Messrs. Maple of Tottenham-court-road, London, have contributed £100 each to the North-West London Hospital, the Royal Free Hospital the Temperance Hospital, and the University College Hospital, London.—£100 have been handed over to the St. John's Convalescent Home for Children, Kemp Town, Brighton, being the net proceeds of the ball recently held in aid of that institution.—The honorary treasurer of the Wirral Children's Hospital has received a donation of £150 from Miss Laird in memory of her late brother, Mr. Macgregor Laird.—Miss Mary Smith, late of Watford, Herts, has bequeathed £100 to the Cottage Hospital, Maidenhead.—A lady, under the initials of "H. M. E.," has sent a donation of £500 to the Chelsea Hospital for Women.—The late Mrs. Sophia Fletcher of Pull-court, Tewkesbury, has bequeathed £100 to the British Home for Incurables.—The Goldsmiths' Livery Company has voted £50 to the British Home for Incurables.—The Lord Lieutenant of Cambridgeshire has given another donation of £1000 to Addenbrooke's Hospital, Cambridge.—Under the will of the late Mrs. S. E. Baker of Bromsgrove, the Trustees have decided to apportion the sum of £7000 to the Bridgnorth and South Shropshire Infirmary.—Mr. John Johnson, late of Seacroft, has bequeathed £500 to the Leeds Hospital for Women and Children.

FOOTBALL CASUALTIES.—The following accidents occurred on the 25th, 26th, and 29th ult., and the 1st inst. At Barnsley, in a match between the High School Boys' Club and Barnsley Victoria team, a player fractured his ankle, and was conveyed to the Beckett Hospital.—A Leigh half-back, while playing against the St. Helens team, at St. Helens, sustained a fracture of his breast bone, and was removed to the St. Helen's headquarters.—At West Derby, a youth, while playing a match, fractured his leg and was injured "internally."—During a match at Reading between the London Caledonian Strollers and the Reading Reserves, a player fractured his clavicle.—At Southampton, in a match between the Bournemouth Wanderers and the St. Mary's Reserves, a player fractured his clavicle and was taken to the Royal South Hants Infirmary.—In a match at Yeovil a player fractured his clavicle.—At Crewkerne in a match a player broke his arm.—A youth while playing at the same place also fractured his arm, and was admitted to the hospital in that town.—At Ferrybridge a youth aged twelve years died on Saturday last from an injury received while playing a game on the previous Wednesday.—At Leith, in a match between the Leith Athletic and Sheffield United teams, the centre half-back of the United League team dislocated his knee, and "seriously injured his ankle."

BOOKS ETC. RECEIVED.

CHURCHILL, J. & A., New Burlington-street, London.
Syphilis. By A. Cooper, F.R.C.S.Eng. Second Edition. Edited by Edwd. Cotterell, F.R.C.S. Illustrated. 1895. pp. 480. Price 18s.
Methods of Operating for Cataract and Secondary Impairments of Vision. By Surgeon-Captain G. H. Fink. Illustrated. 1894. pp. 77. Price 5s.

MACDOUGALL, A., Buchanan-street, Glasgow.
Clinical Records from the Glasgow Royal Infirmary. By Geo. S. Middleton, M.A., M.D. Illustrated. 1894. pp. 82.

NEWMANN, O., & Co., Newman-street, London, W.
Manual Training made Serviceable to the School. By Dr. W. Goetze. Translated into English by W. G. Field, M.A. pp. 157. Price 3s.

First Lessons in Hand and Eye Training; or, Manual Work for Boys and Girls. Illustrated. By G. Kalb. Translated and adapted for English use by W. G. Field, M.A. pp. 143. Price 3s.

RUEFF ET CIE., Boulevard Saint Germain, Paris.

Chirurgie Opératoire du Système Nerveux. Par A. Chipault. Tome Premier: Chirurgie Cranio-Cérébrale. Avec 431 figures. 1894. pp. 744.

SIMPKIN, MARSHALL, & Co., London.

Wintering in Egypt. By A. J. M. Bentley, M.D., and Rev. C. J. Griffinhoofe, M.A. Part I.: Under the Shadow of the Pyramids. Part II.: Hints to Invalids. 1894. pp. 188.

SMITH, ELDER, & Co., Waterloo-place, London.

Dictionary of National Biography. Edited by Sidney Lee. Vol. XLI. Nichols O'Dugan. 1895. pp. 456.

El Ozena Verdadero; por el Dr. Avelino Martin (De Luis Tasso, Barcelona, 1894).—Flies and Cholera Diffusion; by Surgeon-Major R. Macrae, M.B., I.M.S.: reprint from the Indian Medical Gazette, No. 11, November, 1894.—Natural Mineral Waters, their Properties and Uses; by Ingram and Royle, Farringdon-street, London: Tenth Edition, 1895.—A Short Sketch of the New York Medical College, with its Charter; by Edwin H. Davis, A.M., M.D. (The Gilliss Press, New York).—Monatsschrift für Geburtshülfe und Gynäkologie; von Professor Dr. A. Martin und Professor Dr. M. Sänger; January, 1895 (S. Karger, Berlin).—The Teeth of Ten Sioux Indians; by Dr. Wilberforce Smith (Harrison & Sons, St. Martin's-lane, London, 1894).—The Strike at Pullman: Statements of the President and M. Pullman and Second Vice-President T. H. Wickes, before the U.S. Strike Commission; also Published Statements of the Company relating to the Strike.—Handbuch der Speciellen Therapie innerer Krankheiten; 13. und 14. Lieferung (G. Fischer, Jena, 1894).—The Natural History of Plants, Part IX. (Blackie & Son, London).—Magazines: Illustrated Modern Art and Literature, November—December, 1894.—Night and Day, December, 1894.—For January, 1895: The English Illustrated Magazine.—Knowledge.—Cornhill.—The Phrenological.—The Humanitarian.—Boys' Own Paper.—Girls' Own Paper.—Leisure Hour.—Sunday at Home.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

ASHBY, T. H., M.B. Toronto, M.C.P.S. Ont., L.R.C.P. Lond., has been appointed Medical Officer to the Workhouse of the Shardlow Union.

BRACEWELL, W. H., M.B., Ch.B. Melb., has been appointed a Government Medical Officer and Vaccinator for the district of Condobolin, New South Wales.

CHAPMAN, JOHN T., L.R.C.P., L.M., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed a Public Vaccinator at Stratford, Victoria, Australia, vice Matthews, resigned.

FETHERSTONHAUGH, CHAS., M.B., Ch.M. Dubl., L.R.C.S. Irel., has been appointed Health Officer for the Glenlyon Shire, Victoria, Australia.

GRANT, A., M.B., Ch.M. Aberd., has been appointed Health Officer for Oakleigh, Victoria, Australia.

HAWTHORN, W. T., M.R.C.S., has been reappointed Medical Officer for the Northern (No. 1) Sanitary District, and also Medical Officer of Health, of the Wellington Union.

HEWER, H. J., M.B., Ch.B. Melb., M.R.C.S. Eng., has been appointed Visiting Surgeon to the Blackall Prison, Queensland.

HOSKING, WM. H., M.R.C.S. Eng., L.K.Q.C.P., L.M. Irel., has been appointed a Public Vaccinator for the Masterton District, New Zealand.

HOUSE, S. HERBERT, M.B., Ch.B. Vict., has been appointed Resident Medical Officer to the Grimaby and District Hospital.

HOYLE, J. C., L.R.C.P. Lond., M.R.C.S., D.P.H., has been appointed *pro tem.* Medical Officer of Health for Holborn.

HUGHES, W. K., L.R.C.P. Lond., M.R.C.S., has been appointed Specialist for Deformities by the Sisters of Charity, in connexion with St. Vincent's Hospital, Melbourne, Victoria, Australia.

KELYNACK, T. N., M.D. Vict., Ch.B. (Owens College), has been reappointed Pathological Registrar to the Manchester Royal Infirmary.

LAWES, C. H. E., M.B., Ch.M. Syd., has been appointed Resident Medical Officer to the Brisbane General Hospital, Queensland.

LEWIS, ERNEST WOOL, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Assistant Anæsthetist to the West London Hospital.

LOVEGROVE, CHAS., M.D., Ch.M. Toronto, L.R.C.P. Edin., L.M., L.F.P.S. Glasg., has been appointed Surgeon-Captain to the Western Australia Volunteer Force, Western Australia.

MARSDEN, R. W., M.B., Ch.B. Vict., L.R.C.P. Lond., M.R.C.S., has been appointed Resident Medical Officer to the Monsall Fever Hospital.

MCALLISTER, J. F., M.D. Melb., Ch.B., has been appointed Honorary Assistant Surgeon to the Prince Alfred Hospital, New South Wales.

MILLIGAN, WM., M.D., M.Ch. Irel., has been appointed Medical Officer for the Cumberforth Sanitary District of the Huddersfield Union.

MUELLER, H., M.D. Marb., has been appointed Honorary Medical Officer to the Carrington Convalescent Hospital, New South Wales.

PATTON, A. S., M.D. Dubl., Ch.B., has been appointed Visiting Surgeon to the Normanton Prison, Queensland.

PLANCK, CHARLES, jun., M.A. Cantab., L.R.C.P. Lond., M.R.C.S. Eng., late House Surgeon to St. Thomas's Hospital, has been appointed Junior Assistant Medical Officer to the East Sussex County Asylum, Hayward's Heath, vice F. D. Bennett, L.R.C.P., M.R.C.S., resigned.

PROPERT, WALTER ARCHIBALD, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed House Physician to the West London Hospital.

RENNIE, GEO. E., M.D. Lond., M.R.C.S., has been appointed Honorary Assistant Physician to the Prince Alfred Hospital, New South Wales.

RIORDAN, T. F., M.D., Ch.M. Irel., has been appointed Honorary Physician by the Sisters of Charity, in connexion with St. Vincent's Hospital, Melbourne, Victoria, Australia.

ROBERTS, CHAS. G., M.B., B.C. Camb., has been reappointed Medical Officer of Health to the Halstead Local Board.

SAMSON, H. A., M.B., Ch.B. Melb., has been appointed Acting Medical Superintendent to the Ballarat Lunatic Asylum, Victoria, Australia.

STACPOOLE, A. R., L.R.C.P., L.R.C.S., L.M. Edin., has been appointed Surgeon to the Victorian Rangers, with the relative rank as Captain, Victoria, Australia.

TIPPETT, S. G., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Senior House Physician to the Westminster Hospital.

THACKWELL, J. B., M.B., Ch.M. Edin., has been appointed Medical Officer to the Hospital at Ravenswood, Queensland.

YONGE, EUGENE S., M.B., C.M. Edin., has been appointed Assistant Medical Officer to the Manchester Hospital for Consumptions and Diseases of the Chest, vice Dr. Wood, resigned.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BOLTON UNION.—Medical Officer for the Workhouse at Fishpool, for twelve months. Salary £200 per annum and a furnished house. Applications to the Clerk to the Guardians, 28, Mawdsley-street, Bolton.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's-inn-road,—Assistant Registrar for twelve months.

COUNTY ASYLUMS, Prestwich, Manchester,—Phthisicologist. Salary £200 per annum, with furnished apartments, board, attendance, and washing.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY, Chesterfield.—Junior House Surgeon and Dispenser. Salary £50 per year, with board, apartments, and laundress.

FISHERTON ASYLUM.—Assistant Medical Officer, single. Salary £100 per annum, with board, lodging, and washing. Applications to Dr. Finch, Salisbury.

LONDON HOSPITAL MEDICAL COLLEGE, Turner-street, Mile-end, E.—Lectureship on Organic Chemistry. Salary not less than £175 a year.

VICTORIA HOSPITAL FOR SICK CHILDREN, Queen's-road, Chelsea, S.W.—House Surgeon to the In-patients. Honorarium £50 per annum, with board and lodging in the Hospital. Also House Physician to the In-patients. Honorarium £50 per annum, with board and lodging in the Hospital.

Births, Marriages, and Deaths.

BIRTHS.

CRANE, On Dec. 29th, at Sandgate-road, Folkestone, the wife of Andrew J. Crane, L.D.S., of a daughter.

DAY.—On Dec. 23rd, at Baldock, Herts, the wife of F. W. Langston Day, M.R.C.S., &c., of a son.

D'ESTERRE.—On Dec. 27th, at Albion Cottage, Fortis Green-road, East Finchley, the wife of J. Norcott d'Esterre, jun., L.R.C.P. Lond., M.R.C.S. Eng., of a daughter.

GRAY.—On Dec. 30th, at Prescot-road, St. Helens, Lancashire, the wife of Andrew Gray, M.D., of a daughter.

O'CALLAGHAN.—On Dec. 28th, at Harley-street, W., the wife of Robert O'Callaghan, F.R.C.S.I., of a son.

MARRIAGES.

CLAYTON—JARVIS.—On Dec. 29th, at St. Luke's, Redcliffe-square, Charles Clayton, M.R.C.S., L.R.C.P., of Broadhurst-gardens, N.W., to Ellen, daughter of the late W. Jarvis, of South Kensington.

HIRSCH—MOREY.—On Oct. 29th, 1894, at the Holy Trinity Church, Suva, Fiji, by the Rev. Francis Jones, M.A., Charles Theodore William Hirsch, M.R.C.S. Eng., L.R.C.P. Lond., F.C.S. Lond., &c., District Medical Officer, Rewa, Colonial Medical Service, Fiji, to Emmeline, fifth daughter of the late James Morey, Esq., of Fiji.

HUTTON—SMITH.—On Dec. 29th, at the Cathedral, Manchester, Henry Richmond Hutton, M.A., M.B. Cantab., of Manchester, to Evelyn Mary, elder daughter of the late G. Fereday Smith, of Grovehurst, Tunbridge Wells.

SMITH—EDMOND.—On Dec. 28th, at Blackford-road, Edinburgh, J. Lorrain Smith, M.D., son of the late Rev. Walter Smith, Half-Morton, to Ella, daughter of E. Edmond, late of the Indian Civil Service.

DEATHS.

DICKSON.—On Dec. 29th, at Royal-circus, Edinburgh, Walter George Dickson, M.D., aged 73.

HEWITT.—On Dec. 26th, at Catford, Henry Bealey Hewitt, M.B. M.Ch. Cantab., (Clare College).

REITH.—On Dec. 30th, on board ss. *Norham Castle*, Archibald Reith M.D., Aberdeen.

STORY.—On Nov. 27th, at Telepara, near Nagrakata, Bengal, Arthur N. J. Story, M.B., aged 30.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 3rd, 1895.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb	Solar Radia tion Vacuo	Maximum Temp. Shade	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Dec. 28	30·54	W.	35	34	49	47	23	..	Foggy
,, 29	29·40	N.W.	41	38	69	45	35	0·08	Cloudy
,, 30	29·34	N.W.	35	33	47	40	34	0·02	Cloudy
,, 31	29·61	N.	32	Frzn.	51	39	30	...	Cloudy
Jan. 1	29·87	N.W.	32	..	54	39	31	0·03	Fine
,, 2	29·89	N.W.	35	..	55	44	31	0·21	Overcast
,, 3	29·46	N.E.	36	35	46	36	33	...	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (1 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynecological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.).

TUESDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1.30 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY.—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), Gt. Northern Central (2.30 P.M.), King's College (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.).

THURSDAY.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (2 P.M.), Soho-square (2 P.M.), North West London (2 P.M.).

FRIDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), Cancer (2 P.M.), Chelsea (2 P.M.).

SATURDAY.—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY.—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—Mr. John D. Malcolm: Illustrations of some Modes of Death from Ovariotomy.

WEDNESDAY.—LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—4.30 P.M. Annual General Meeting. Election of Officers and Council, &c. Cases, Specimens, &c., by Mr. A. E. Durham, Dr. William Hill, Dr. Alex. Hodgkinson (Manchester), Dr. Middlemass Hunt (Liverpool), Dr. Percy Kidd, Dr. Edward Law, the President, Dr. Scanes Spicer, and Mr. W. R. H. Stewart. The Annual Dinner at the Café Royal, Regent-street, at 8 P.M.

HUNTERIAN SOCIETY.—8.30 P.M. The President (Mr. Charters J. Symonds): The Surgical Treatment of Typhlitis.—Dr. Fred. J. Smith: Notes of a case of Typhoid Fever treated by the Continuous Bath.

NORTH-WEST LONDON CLINICAL SOCIETY (North-West London Hospital, Kentish Town-road).—8.30 P.M. Exhibition of Cases.

THURSDAY.—BRITISH GYNÆCOLOGICAL SOCIETY.—Specimens. Reports on Specimens. Election of Officers for 1895. President's Valedictory Address.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND (20, Hanover-square, W.).—4.30 P.M. Dr. Eddowes: Explicative Dermatitis.—Dr. David Walsh: A Note on Antitoxin Rash.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY (Great Northern Central Hospital).—9 P.M. Dr. A. Morison: The Blood pressure in Angina Pectoris.—Dr. Archibald K. Christie: Remarks on the Selection of Cardiac Tonics.

FRIDAY.—CLINICAL SOCIETY OF LONDON.—Mr. Mayo-Robson: Three cases of Abdominal Section for Unusual Conditions—(*a*) Tuberculous Disease of the Liver, (*b*) Complete Volvulus and Strangulation of Great Omentum, and (*c*) Traumatic Hæmorrhage without External Wound.—Dr. J. W. Browne: A case of Loculated Empyæma.—Mr. F. Eve: A case of Acute Intestinal Obstruction from Gall-stone; Laparatomy; removal of stone; suture; recovery.—Dr. S. West: Two cases of Detachment of the Retina in the course of Granular Kidney.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY.—CENTRAL LONDON THROAT AND EAR HOSPITAL.—Dr. Dundas Grant: The Methodical Diagnosis of Diseases causing Deafness without Pain or Discharge.

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

COVER TO THE LANCET.

THE Manager begs to announce that at the request of many advertisers, and to keep pace with the ever-increasing demand for "position" pages, it has been decided to issue a cover to THE LANCET, commencing with the present number. The cover is printed on the same kind of paper as the journal itself, and thus ensures uniformity of appearance with past issues. With this exception of the cover the journal remains exactly as it was before. The Proprietors cannot consent to the insertion of advertisements in the centre of the paper—a position which has frequently been applied for, but which is annoying to the general reader.

THE INDEX TO THE LANCET.

THE Index for the last half-year was published in our last issue, which completed the second volume of the year 1894. Those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Manager.

THE INFECTIOUS DISEASES (NOTIFICATION) ACT.

To the Editors of THE LANCET.

SIRS,—I was recently asked by a *confrère* to see two cases of small-pox with him, in order to confirm his diagnosis, which proved to be a correct one, and in due course I forwarded two certificates, as required by the Infectious Diseases (Notification) Act. Our medical officer of health writes to me that "the Act does not provide for the sending of duplicate certificates when a second medical practitioner is called in to see a case in consultation with the medical man in attendance, and I do not think that any fee is payable to you in regard to the two cases in question." Would you kindly in your next issue inform me whether, in your opinion, this is a correct view of the case, and whether a letter addressed to the Secretary of the Local Government Board would be likely to elicit an opinion as to what the law really means on the point in question—if it has not already been decided?

I am, Sirs, yours faithfully,

Birmingham, Dec. 18th, 1894. J. M. WALKER.

*** The Act requires that every medical practitioner called in to see a case of one of the specified infectious diseases shall notify the same. Nothing is said in the Act either as to a first or second medical practitioner; neither is anything said as to first or subsequent cases of sickness. Consequently, each case has to be notified, and each case has to be paid for. If further difficulty arises, a letter should be addressed to the Secretary of the Local Government Board, specifying the actual fact and putting the question definitely, with request for an answer.—ED. L.

THE DISPOSAL OF DEAD CHILDREN.

SOME very disquieting evidence as to the disposal of deceased infants was elicited at an inquest held by Mr. G. P. Wyatt at the Newington Coroner's Court on Dec. 28th. The child of a single woman, who had been attended in her confinement by a midwife, died twelve days after birth, and on the following day the body was wrapped in brown paper, and left by the midwife at an undertaker's shop in the neighbourhood. The birth was not registered. The explanation of the omission, according to the account of the proceedings published by the *Evening Standard*, was that the midwife undertook to perform this duty, but found herself too busy to attend to it, and the mother was unable to leave the house. The coroner was communicated with and the mother admitted that she had no money to defray the expenses of a funeral, but denied that she had connived at an attempt to have the body buried as still-born; in fact, her expectation was that the midwife who removed it would "throw it over the railings and give it a cheap funeral." The undertaker's wife, to whom the parcel was delivered, was under the impression that the child had been still-born, but she added, curiously enough, that the midwife "promised to bring the certificate on the following Monday." The jury returned a verdict of death from malnutrition and considered the conduct of the midwife very reprehensible.

C. E. P.—A circular to *bond fide* patients on change of tenure in a practice, and where personal introduction is impracticable, is permissible; but the advertisement of low charges is very objectionable. The period of three years seems rather long, and might easily cover the circulation of the document among the patients of other practitioners, which should be avoided.

F. E. C.—No powers exist in this country of "quarantining" healthy persons in the way suggested as desirable at Guernsey, though Leicester has assumed such a power. Compulsory removal to hospital with us is made under Section 124 of the Public Health Act, 1875. Guernsey is, we believe, under the jurisdiction of the Home Office as regards these matters.

A District Medical Officer would be glad to know if there exists a handbook for the guidance of parish doctors in their duties and obligations, and written rather directly from their point of view.

"MUCUS IN THE EVACUATIONS."

To the Editors of THE LANCET.

SIRS,—In reference to a letter under the above heading, which appeared in THE LANCET of Dec. 15th, 1894, p. 1461, I, like "A Reader," should be glad to know the causation, pathology, and proper treatment of this disease. The literature of the subject is limited. Under the heading, "Chronic Mucus Colitis," some twenty years ago or more, the late Sir Andrew Clark and Dr. Habershon wrote separately some articles on this subject, which appeared in THE LANCET of the time. Pseudo-membranous colitis is due, according to some writers, to a lesion of the spinal cord. I believe that chronic mucus colitis is somewhat similar and due to exhaustion of the nerve centres of the lumbar portion of the cord; that when the injesta reaches the colon the glands in this portion of the intestine are unduly excited, the more so if the digestion in the stomach or duodenum be faulty. All astringents, I believe, are useless either given by the mouth or rectum. Purgatives are harmful. If constipation exists I should recommend an enema to be given once a day, preferably in the morning. Strychnine and so-called spinal tonics over-excite the cord and make matters worse. In my experience the only drug effectual in this disease is dilute hydrocyanic acid ℥iii. after food. The diet should be of the most digestible form. Vegetables, owing to their large residue, should be taken sparingly. A glass of good port wine might be given at dinner, according to the age of the patient. Smoking and alcoholic excess should be interdicted, as also late hours and anything of an exhausting tendency.—I am, Sirs, yours truly,

Dec. 19th, 1894. S. W. WILSON.

Messrs. Dawson & Sons, of Bream's-buildings, Chancery-lane, have sent us one of their "Ceres" Letter File Boxes, which appears to be an excellent contrivance for keeping in order and ready to hand, at a moment's notice, a maximum of papers, memoranda, &c., with a minimum of trouble. After a trial we shall be the better able to pronounce a more definite opinion upon its value.

J. S. R.—Our correspondent points out a condition of things worse than we had imagined, and we knew the condition to be bad. His communication shall receive our most serious attention.

THE DUTIES OF A VOLUNTEER BRIGADE-SURGEON.

To the Editors of THE LANCET.

SIRS,—Can any of your readers inform me of a book where I may learn the duties of a volunteer brigade-surgeon when in camp? I have the Regulations for Army Medical Services and Standing Orders of Army Medical Staff, 1894, but it does not mention the duties during encampment. I am, Sirs, yours truly,

Dec. 29th, 1894. VOLUNTEER.

AN UNANSWERABLE EXPLANATION.

AT page 48 of his book, entitled "The Vaccination Question," Mr. Hutton, a well-known antivaccinationist, writes as follows:—

> "Revaccination became the cry a few years ago, and the cry has quite lately been extended to 'frequent' or (what amounts to the same thing) 'recent revaccination,' which we are now assured is the only genuine and absolutely safe defence. Of course, this doctrine drives a coach-and-four through legislation which insists only on vaccination in infancy, and it also renders a little ridiculous the horror which many advocates have professed to feel at the state of unvaccinated infants as 'centres of infection.' ..... Dr. Seaton recommended revaccination at puberty, but objected to a third repetition of the operation. On the other hand, Dr. Collingridge, the active medical officer of health for the port of London, advocates thoroughly efficient *annual* revaccination."

This argument, deriding the alleged necessity for *annual* revaccination, has been used by Mr. Milnes as well as by Mr. Hutton, and appears to have been based on a summary of a report made by Dr. Collingridge and published in *The Times* on July 14th, 1881. Unfortunately for Mr. Hutton's fancied triumph, Dr. Collingridge writes in *The Times* of Dec. 27th, 1894, referring to the above-mentioned summary, and points out that "annual vaccination" was by a printer's error substituted for "*animal* vaccination," which was the very different expression really employed in Dr. Collingridge's report. We are not aware that Mr. Hutton has, as he surely should do, made a courteous and graceful apology to Dr. Collingridge for the mistake into which he was unwittingly led.

G. C.—There is nothing contrary to professional etiquette in sending to the patients whose names are upon the books of the previous owner of the practice a notice that the practice has been transferred. Such circulars should not be sent to the patients of other practitioners, and good taste will prevent them from constituting anything more than a formal announcement.

Surgeon.—The question our correspondent asks is a large one, and the facts as stated are hardly sufficiently detailed to enable us to give an explicit reply.

THE SUPPLY OF STERILISED MILK.

To the Editors of THE LANCET.

SIRS,—We have seen your interesting article with reference to the supply of sterilised milk in New York, and with regard to your concluding remark, that "the question of sterilising milk is well worthy of careful consideration, and the practical experiment made in New York should be watched and perhaps imitated," we beg to inform you that we have for many years supplied sterilised milk with great success not only in London, but to all parts of the United Kingdom, to the Continent, and even to New York, the West Indies, &c.

I remain, Sirs, yours faithfully,

RICHARD S. BOND,
Chairman the Aylesbury Dairy Company, Limited.

St. Petersburg-place, Bayswater, London, W., Dec. 20th, 1894.

"CENTRIFUGAL FORCE IN THE EXAMINATION OF SPUTUM."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Dec 8th, 1894, reference is made to Mr Metzger's instrument for separating tubercle bacilli by centrifuga's force. Can any of your readers tell me if this has been used with typhoid bacilli; and, if so, with what success?

I am, Sirs, yours faithfully,

Jan. 1st, 1895. SEPARATOR.

THE MEDICAL MANAGEMENT OF WORKHOUSES.

To the Editors of THE LANCET.

SIRS,—Can any of your readers oblige me by telling me what is the best source of information respecting the medical management of workhouses? What competent information is published "up to date"?

I am, Sirs, yours faithfully,

Dec. 19th, 1894. R. N.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*Banffshire Advertiser, Newbury Weekly News, Birmingham Post, Manchester Guardian, Fife Herald, Sheffield Independent, North British Daily Mail, Chester Chronicle, To-Day, Brighton Standard, Cheltenham Mercury, Devon City Standard, Glasgow Herald, Ormskirk Advertiser, Weekly Times and Echo, People, Western Morning News, Cork Examiner, City Press, Stroud News, Morning Leader, Brighton Guardian, Brisbane Telegraph, Building News, Sun, Citizen, Dorset County Chronicle, Walsall Observer, Bristol Times, Annandale Observer, Leigh Chronicle, Yarmouth Gazette, Swansea Journal, Teignmouth Gazette, Courrier de la Presse, Liverpool Courier, Australasian Medical Gazette, Guy's Hospital Gazette, Worcester Chronicle, Leamington Spa Courier, Cape Times, Portsmouth Evening Mail, Dublin Evening Telegraph, Southampton Echo, Gray's Standard, Times of India, Elgin Courant, Pioneer Mail, &c., &c.*

Communications, Letters &c. have been received from—

A.—Dr. J. Armstrong, Liverpool; Dr. J. A. Arkwright, Halesowen; Dr. C. C. Aitken, Barnsley; Mr. D. Ainley, Halifax; Mr. H. Abrahams, Lond.; Aberystwyth Infirmary, Sec. of; A. K., Lond.; A. L., Lond.

B.—Sir William Broadbent, Lond.; Dr. A. Barber, Harrogate; Mr. E. Berdoe, Lond.; Mr. R. Branthwaite, Twickenham; Mr. W. F. Brook, Swansea; Mr. T. B. Browne, Lond.; Mr. J. Burnet, Edinburgh; Mons. O. Berthier, Paris; Mr. D. Biddle, Kingston-on-Thames; Mr. R. D. Barber, Eastwood; Mr. Lennox Browne, Lond.; Mr. E. Brown, Chalford; Mr. G. Brown, Greenock; Mr. J. Brown, Lond.; Mr. R. A. Bayliss, Chard; Mr. G. E. Bridge, Bournemouth; Mr. C. Birchall, Liverpool; Messrs. Burroughs, Wellcome and Co., Lond.; Messrs. Bramwell Bros., Liverpool; *British and Colonial Druggist*, Lond., Publisher of; Brompton Hospital, Sec. of; Bolton Union, Clerk of; Bovril, Ltd., Lond.

C.—Dr. W. S. Colman, Lond.; Dr. S. B. Cox, Ramsgate; Dr. W. J. Clever, Sheffield; Dr. E. Cohn, Berlin; Mr. C. D. Cassidy, Dublin; Mr. H. Collier, Sheffield; Mr. A. E. Clarke, Malmesbury; Mr. W. H. Cope, Birmingham; Mr. H. S. Chavasse, Sutton Coldfield; Mr. H. M. Cummins, Dublin; Messrs. F. C. Calvert and Co., Manchester; Chelsea Hosp. for Women, Sec. of; Cent. Lond. Throat and Ear Hosp., Sec. of; Class Rooms, Edinburgh.

D.—Dr. J. T. R. Davison, Buenos Ayres; Dr. W. Dickson, Stirling; Dr. G. W. Davis, Sidcup; Mr. T. G. Denton, Lond.; Mr. A. Duncan, Glasgow; Mr. W. G. Dickinson, Lond.; Mons. O. Doin, Paris; Messrs. A. Durant & Co.

E.—Mr. W. Edmunds, Chesterfield; *Educational Times*, Editor of; Excellent, Lond.; E. L.

F.—Dr. T. Fisher, Clifton; Mr. Fletcher, Warrington; Mr. J. W. Feltwell, Chiswick; Mr. W. C. Finch, Salisbury; Mr. R. H. Fagge, Lond.; Messrs. Fannin and Co., Dublin; Festina, Lond.

G.—Dr. J. Gardner, Crieff; Dr. G. A. Gibson, Edinburgh; Prof. W. S. Greenfield, Edinburgh; Mr. T. H. Gillam, Bromyard; Mr. C. J. K. Gillespie, Boston; Mr. M. C. Gray, Patna, India; Messrs. C. Griffin and Co., Lond.; Great Northern Central Hospital, Lond., Sec. of; G. P.

H.—Sir F. Seymour Haden, Airesford; Dr. J. A. Hutton, Scarborough; Dr. C. Hour, Roberts-bridge; Mr. J. W. Hulke, Lond.; Surg.-Capt. H. Herbert, Bombay; Mr. John Heywood, Manchester; Mr. J. Hart, Lond.; Mr. J. Horsted, Newcastle-on-Tyne; Mr. Hill Hartland, Sheffield; Haydock Lodge, Newton-le-Willows, Med. Supt. of; Halifax Infirmary, Sec. of; Hosp. for Epilepsy and Paralysis, Lond., Sec. of.

I.—Messrs. I. Isaacs and Co., Lond.

J.—Sir George Johnson, Lond.; Mr. F. B. Jessett, Lond.; Messrs. W. & A. K. Johnstone, Edinburgh.

K.—Dr. Norman Kerr, Lond.; Messrs. W. and J. Kennedy, Hawick; Kops Brewery, Lond.; K., Lond.

L.—Dr. H. J. Ley, Handsworth; Mr. C. B. Lockwood, Lond.; Mr. H. K. Lewis, Lond.; Mr. A. Leckie, Lond.; Mr. J. Lowe, Brighton; Mr. H. Lane, Bath; Mr. G. B. D. Levick, Pinner; Mrs. C. Leeson, Twickenham; Messrs. Lee and Nightingale, Liverpool; Messrs. Lever Bros., Lond.; London Hospital, House Governor of; Liquor Carnis Co., Aston Clinton.

M.—Dr. Norman Moore, Lond.; Dr. J. R. Morison, Newcastle-on-Tyne; Dr. J. Millar, Nottingham; Dr. J. Mackenzie, Burnley; Mr. H. F. Moody, Grimsby; Messrs. Mellin and Co., Lond.; Messrs. J. Maythorn and Son, Biggleswade; Messrs. Morison, Pollexfen, and Blair, Lond.; Messrs. C. E. Mason and Co., Lond.; Messrs. Mawson, Swan, and Weddell, Newcastle-on-Tyne; Messrs. J. and C. Mort, Stafford; Messrs. J. & R. Morley, Lond.

N.—Mr. J. A. Neser, Klerksdorp.

O.—Dr. E. S. O'Grady, Dublin; Dr. H. L. Ornerod, Bristol; Messrs. Oliver and Boyd, Edinburgh.

P.—Dr. W. S. Park, Sydney, N.S.W.; Mr. W. H. Pollard, Oxford; Mr. J. Plummer, Sydney, N. S. W.; Prestwich County Asylum, Manchester, Sec. of.

R.—Sir J. Russell Reynolds, Lond; Dr. A. J. M. Routh, Lond.; Dr. M. A. Ruffer, Lond.; Mr. H. M. Riley, Leicester; Messrs. Richardson Bros., and Co., Liverpool; Messrs. Richardson and Co., Leicester; Messrs. Reynolds and Branson, Leeds; Messrs. J. Raphael and Co., Lond.; Messrs. Reid and Donald, Perth; Messrs. Robinson and Sons, Chesterfield; Roy. Infirmary, Manchester, Sec. of; Roy. Free Hosp., Lond., Sec. of; Roy. Aquarium, Lond., Sec. of; Roy. Academy of Arts, Lond., Sec. of; R. M. I., Lond.; R. C. W.

S.—Dr. H. Snow, Lond.; Mr. L. Stephens, Emsworth; Mr. E. Stevens, Brighton; Mrs. R. G. Silverlock, Lond.; Messrs. J. Smith and Co., Lond.; Messrs. W. H. Smith and Son, Lond.; Messrs. Slade, Lewis and Slade, Lond.; "St. Raphael's," Croydon, Sec. of; Sanitas Co., Lond.; Samaritan Free Hosp., Lond., Sec. of; St. Andrew's Hosp., Northampton, Sec. of; Sussex, Lond.; Salus, Lond.

T.—Tasma, Lond.

V.—Mr. W. Venis, Benares, India; Victoria Med. Society, N.S.W., Hon. Sec. of; Victoria Hospital, Folkestone, Sec. of; Victoria Infirmary, Northwich, Hon. Sec. of; Volunteer.

W.—Dr. J. M. Walker, Birmingham; Dr. D. A. Welsh, Edinburgh; Dr. W. T. Wearing, Kirkby Lonsdale; Mr. C. Williams, Norwich; Mr. W. Williams, Penarth; Mr. R. Watson, Lond.; Mr. R. M. West, Ealing; Mr. J. Westmorland, Manchester; Mr. S. Wand, Leicester; Mr. R. H. Woodhouse, Lond.; Mr. F. D. Woon, Lond.; Messrs. Waterlow and Sons, Lond.; West London Hosp., Hon. Sec. of; Western Ophthal. Hosp., Lond, Sec. of.

Letters, each with enclosure, are also acknowledged from—

A.—Alpha, Sheffield; Æsculapius, Lond.; A. K., Lond.; A. B. C., Birmingham.

B.—Dr. L. Brunton, Lond; Dr. R. Boxall, Lond.; Dr. J. J. Bailey, Lond.; Dr. F. O. Buckland, Lond.; Mr. J. H. Booth, Chesterfield; Mr. A. J. Bulger, Wolverhampton; Mr. W. Bryce, Edinburgh; Mr. W. Bernard, Londonderry; Mr. H. Brice, jun., Exeter; Mr. S. Bassett, Lond.; Mr. A. Berrill, Lond.; Mr. W. R. Boulter, Woolwich; Mr. J. H. Busteed, Lond.; Mr. J. W. Blampied, St. Lawrence, Jersey; Messrs. Burroughs, Wellcome, and Co., Lond.; Messrs. Brady and Martin, Newcastle-on-Tyne; Beta, Lond.; B., Lond.

C.—Dr. R. J. Colenso, Lond.; Dr. J. Campbell, Mansfield; Dr. H. Case, Ulverston; Dr. E. Carmichael, Edinburgh; Mr. H. Cointepas, St. Denis, Seine; Mr. W. M. Cummins, Dublin; Mr. G. Cross, Burgh, Lincs; Mr. B. Coomar, Calcutta; Messrs. Culshaw and Co., St. Helens; Curriculum, Lond.; Consultant, Lond.; Cardiac, Lond.

D.—Dr. H. B. Donkin, Lond.; Dr. W. H. Day, Lond.; Dr. D. R. Davies, Lond.; Mr. A. N. Dos, Jaunpeer, India; Mr. H. J. Dean, Lower Stoke; Mr. F. Dixon, Lond.; Mr. A. Duncan, Glasgow; Messrs. A. Durant and Co., Lond.; Denaeyer's Co., Lond.; Deaconesses' Institute, Tottenham, Superintendent of; Derbyshire Infirmary, Derby, Sec. of; Doctor, Lond.

E.—Mr. H. T. Eve, Lond.; Mr. S. Edwards, Tudhoe; Exalgine, Lond.

F.—Dr. F. B. Fisher, Dorchester; Dr. W. B. Fergusson, Painswick; Mr. L. Franklin, Thaxted; Mr. W. J. Fox, Chesterfield; F., Lond.; Falopius, Lond.; F. F. D., Matlock Bridge.

G.—Dr. H. C. Garth, Morden; Dr. H. Gilbert, Baden Baden; Mr. J. A. Goldwin, Rochester; Mr. W. B. Gordon, Bradford; Mr. A. Greenstreet, Pattingham; Mrs. Gifford, Lond.; German Hospital, Lond., Superintendent of; G., Lond.; Glaucus, Bath.

H.—Dr. F. J. Harpur, Cairo; Dr. H. Harper, Nottingham; Dr. A. Hall, Grantham; Mr. J. A. Hurst, Londonderry; Mr. F. B. Higgins, Henley-on-Thames; Mr. A. Hawkyard, Hunslet; Hydrargyrum, Lond.; H. H. W., Lond.; Hortus, Lond; Hirambif, Lond.

J.—Mr. C. H. Jackman, Lond.; J. A., Lond.; J. B. T., Lond.

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